

SUN Manli

An exploratory study of the understandability of listed companies' annual reports

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Abstract In order to investigate the comprehension difficulties arising from the highly-specialized writing formats of listed companies' annual reports, this research evaluates investors' comprehension of annual reports and discusses ways to improve their understandability. The Cloze method is employed in this experimental study involving university students and preliminary testing. This research concludes that the understandability of Chinese listed companies' annual reports is close to the comprehension capacity of semi-professional investors but beyond non-professional investors. The extensive use of a great number of accounting jargons is likely the main cause for comprehensive difficulties for non-professionals.

Keywords understandability of annual reports, Cloze-test, accounting terms, multilayer report

1 Research background

The usefulness for decision-making is the primary quality of accounting information (FASB, 1992). Understandability, reliability and relevance help ensure the decision usefulness of information. Understandability is the precondition of "information usefulness." Incomprehensible information for users is neither reliable nor relevant. Understandability is thus one of the important indexes that reflect information quality. Annual reports are an important information vehicle for investors to judge a company's well-being and make investment decisions.

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SUN Manli (✉)

School of Business, Renmin University of China, Beijing 100872, China

E-mail: manlisun@sina.com

Whether or not investors can accurately understand the information in an annual report has a direct influence on the efficiency of resource allocation in the capital market. However, in terms of the quality of information released by listed companies, most domestic researches were reliability- or relevance-oriented, while very few of them considered understandability.

It is generally accepted by Western scholars that annual reports of listed companies are incomprehensible to most information users. If this conclusion also applies to the Chinese situation, promotion of the clarification of annual reports is inevitable. Therefore, this paper chooses the annual reports of Chinese listed companies as its research subject in order to evaluate the understandability of company annual reports for investors and then suggests several ways to improve their understandability.

2 Literature review

Western scholars made numerous empirical studies on the understandability of annual reports for investors, mainly from the 1970s to the 1990s. They all surprisingly came to the same conclusion that the understandability of annual report information is beyond the cognitive capacity of information user groups. "Almost without exception, these studies corroborate and confirm the overall finding over time and across countries that annual reports being written at a reading-ease level are classified as difficult or very difficult" (Courtis, 1998). "An education approaching at least the undergraduate level is needed to fully understand annual reports; a majority of the population will consequently not be able to understand them" (Jones and Shoemaker, 1994). "...less than 20% of the US adult population had achieved an educational level sufficient to comprehend the messages appearing in 86% of the notes to financial statements" (Smith and Taffler, 1992). Still (1972) systematically evaluated the annual reports of 50 British listed companies and found that the understandability of 77% of annual reports was beyond the capacity of 80.7% of adults. Heath and Phelps (1984) analyzed 20 companies out of Fortune's top 500 and found that at least 50% of the shareholders had comprehension difficulty with annual report content. They found some economic journals that are much easier to understand than annual reports. Courtis (1986) analyzed 65 Canadian company annual reports and discovered that the reports corresponded to the comprehension level of those readers who receive university education. Jones (1988) analyzed the annual reports of one company from 1952 to 1985 and drew the conclusion that 20 out of 32 annual reports were extremely difficult to understand, nine were rather difficult and three were ordinarily difficult. He believed that only 50% of the public had the educational background for understanding annual reports. Smith and Taffler (1992) discussed

the different comprehension effect on information users of different professional levels. They used fourth-year accounting undergraduates and accounting practitioners to sit in a Cloze test with 66 sample companies' annual reports. The conclusion was that the accounting practitioners were just able to understand sample annual reports, while the fourth-year accounting undergraduates' comprehension ability of annual reports was far from the required comprehension level. The study showed a high level of difficulty of annual reports.

3 Understandability test for listed companies' annual reports

3.1 Students experiment design

The evaluation of the understandability of annual reports is inseparable from the participation of annual report readers. Referring to the methodology employed by Smith and Taffler (1992), this article designed a Cloze test for accounting undergraduates with the purpose of evaluating the understandability of annual reports for information users of different levels in the Chinese market.

3.1.1 The basic rationale of the Cloze test

The Cloze test was first proposed by Wilson L. Taylor as a method to test information understanding in 1953. The essential concept of a Cloze test is to excerpt sample discourses of 150 to 300 words from articles. One word in every five is deleted from the excerpt and replaced with a blank of standard length. The discourse with blanks is given to readers who are asked to restore the excerpt by filling each blank with a suitable word. A high proportion of correct blank-filling indicates high article understandability for target readers.

Bormuth (1968) establishes benchmark criterion reference scores for the Cloze procedure of 44 percent for instructional study and 57 percent for independent study. Thus, tests scoring above or below 44 percent for instructional level materials and above or below 57 percent for independent level materials are deemed understandable or not understandable. Listed company annual reports are independent level materials for investors, so the 57 percent understandability of benchmark should be applied to them.

3.1.2 Classification of investors

There are many information users of annual reports, and each user will have a different comprehension level. In order to accurately evaluate the understandability of company annual reports for Chinese investors, investors in this article are

classified into three levels in terms of specialization: (a) professionals, referring to those who have specialized accounting training and practical work experience in accounting; (b) semi-professionals, referring to those who have accounting work or learning experience; and (c) non-professionals, referring to those who have no accounting background at all. According to the general experience, professionals should not have much difficulty in understanding annual reports. Otherwise, annual reports would be useless. Smith and Taffler's (1992) study also proves that experts are able to understand annual reports. Thus, the studies on understandability of annual reports should focus on semi-professionals and non-professionals. Therefore, in order to reduce unnecessary workload, this study used only semi-professionals and non-professionals as the subjects for the Cloze test.

3.1.3 The participants

First-year accounting undergraduates and fourth-year accounting undergraduates were chosen to be the subjects for the experiment (referred to below as first-year undergraduates and fourth-year undergraduates). First-year undergraduates represent non-professional investors since they have not gained much accounting knowledge. Fourth-year undergraduates have completed most core courses but without practical accounting work experience, thus they can represent semi-professionals. According to the past studies, accounting professionals have rich working experience and therefore their comprehension ability is higher than that of fourth-year undergraduates. Based on the Cloze test in Smith and Taffler's (1992) study, the score of accounting professionals and fourth-year accounting undergraduates in one set of annual report Cloze tests were 57.7 and 48 percent respectively with professionals 20 percent higher than undergraduates. Similarly, semi-professionals and non-professionals who have years of experience in stock investment should have relatively higher comprehension ability than fourth-year or first-year undergraduates. The study result analysis will take this factor into consideration.

3.1.4 Sampling annual reports

The study sampled 60 annual reports with half of positive profit and half of negative profit. By doing this, the effect of company performance on annual report writing can be eliminated. Approximately 250-word blocks of discourse with similar content from each board of directors' report were excerpted and one word in every five was deleted and replaced with a blank for students to complete. In the examination, each annual report was completed by two undergraduates and the numbers of correct answers were recorded by comparing with the original text.

Then, the average score of two students was calculated to reduce the effect of personal subjective factors. Finally, the number of correct answers divided by the total number of blanks, the score of first-year undergraduates in the Cloze test was obtained. The same procedure was also applied to the fourth-year undergraduates to obtain the scores.

3.2 Hypothesis

According to Bormuth's benchmark criterion, if students' score is above 57 percent, the annual report is therefore understandable for the subject, and vice versa. Considering the preceding research results, hypothesis 1 and hypothesis 2 are proposed as follows:

H1: scores of first-year accounting undergraduates for the Cloze test are below 57 percent.

H2: scores of fourth-year accounting undergraduates for the Cloze test are below 57 percent.

In addition, the outstanding feature of company annual reports is high specialization and fourth-year undergraduates are supposedly better than first-year undergraduates in terms of specialized knowledge. Therefore, the scores of fourth-year undergraduates should be higher than those of first-year undergraduates. Hypothesis 3 is then proposed as:

H3: scores of fourth-year accounting undergraduates for the Cloze test are higher than those of first-year accounting undergraduates.

3.3 The result of the student experiment

The 39 percent result of first-year undergraduates is much lower than Bormuth's 57 percent criterion. Since the T-test result is highly significant, hypothesis 1 is accepted. Scores of first-year undergraduates are below 57 percent, which indicates that first-year undergraduates are not able to understand company annual reports. The score of fourth-year undergraduates is 55 percent, which is

Table 1 Statistical results of the Cloze test

Item	First-year undergraduate	Fourth-year undergraduate	The difference between fourth-year undergraduate and first-year undergraduate
Average score for the Cloze test	39%	55%	16%
T-test result of hypothesis 1	Accepted***	—	—
T-test result of hypothesis 2	—	Rejected	—
T-test result of hypothesis 3	—	—	Accepted***

Notes: * stands for $p = 0.05$; **stands for $p = 0.01$; ***stands for $p < 0.005$.

close to 57 percent set by Bormuth. The independent-sample T-test shows that there is no significant difference between the two scores. Therefore, hypothesis 2 is rejected. The comprehension capacity of fourth-year accounting undergraduates is close to the understandability of annual reports.

For the same set of annual report samples, the average score difference between fourth-year students and first-year students is 16 percent, which is far above zero. This result shows that the scores of fourth-year undergraduates are higher and is in line with hypothesis 3. The paired-sample T-test also shows a highly significant significance level. Therefore, hypothesis 3 is accepted. In other words, the understandability of annual reports of fourth-year undergraduates is higher than that of first-year undergraduates.

3.4 Result analysis

The average score of fourth-year undergraduates for the Cloze test is very close to 57 percent required by Bormuth. Statistical analysis shows that the two have no significant difference. Moreover, since investors in the capital market are much more interested in company information and have much more experience than undergraduates, semi-professional investors should have higher understandability than that of fourth-year undergraduates. Thus, we can draw the conclusion that the understandability of annual reports is close to the comprehension capacity of semi-professionals.

The scores of first-year graduates for the Cloze test is far below 57 percent and the statistical analysis result is significant, which means the understandability of annual reports is beyond that of first-year undergraduates as non-professional investors. Even if the actual comprehension capacity of investors in the market is a little higher than that of undergraduates, it will not have a substantial influence on the study result. Therefore, the conclusion that the understandability of Chinese listed company annual reports is beyond the comprehension capacity of non-professionals can be drawn.

In order to further illustrate the understanding difficulty for non-professionals with annual reports, we can also use the 44 percent criterion for instructional materials to evaluate the result. By comparison, it is noticed that the average score of first-year undergraduates is still below 44 percent, $p = 0.01$ in T-test, which indicates that non-professionals cannot meet the comprehension requirement of annual reports even with professional instructions.

By comparing the scores of the Cloze test between fourth-year undergraduates and first-year undergraduates, it is noticed that the comprehension of fourth-year undergraduates is much higher than that of first-year undergraduates. The difference mainly lies in the accounting background. Therefore, it is inferred that the reading obstacle for non-professionals is mainly produced by the

specialization of the annual reports. The application of a great number of accounting terms is probably the main cause for non-professionals' being unable to understand company annual reports.

In brief, the final conclusion of the paper from the student experiment is that the understandability of Chinese listed companies' annual reports is close to the comprehension capacity of semi-professional investors but unreachable for non-professional investors. Improving the understandability of annual reports for non-professional investors is an urgent problem needed to be solved by company annual report practice.

4 Ways to improve the understandability of company annual reports

Most private investors are non-professionals. The student experiment in the article has proved that Chinese annual reports are incomprehensible for non-professional investors. The biggest obstacle is the highly specialized content and the numerous accounting terms contained therein. However, it seems unrealistic to abandon specialized annual reports and use a “colloquial” form of popularized annual reporting, since the major element of annual reports are financial accounting data, which by their very nature determine the inevitable use of accounting terms. In addition, owing to the large scale and complicated business features of listed companies, it is more accurate and concise to use accounting terms to describe the financial condition and results of operations of listed companies. The author believes that the effective way to improve the understandability of annual reports is not to go from extreme specialization to extreme popularization, but to provide different forms of annual reports. On the basis of specialized annual reports, different specialization levels of annual reports should be designed and adopted according to investors of different specialization levels. Specifically speaking, the following three methods are suggested.

4.1 Providing specialized annual reports with annotations for accounting terms

Providing specialized annual reports can maximally guarantee the information completeness and accuracy, but what needs to be considered is the possibility of complementing the understandability of the information. Providing definitions or explanations for accounting terms appearing in the annual reports can greatly reduce the understanding difficulty for non-professional investors. At present, the Chinese government has begun to consider this issue. For instance, item 19 in the *Information Release Content and Format Guidelines of Listed Companies—Semi-annual Report* requires that “companies should give explanations for the

accounting terms with special meaning or that hinder investors' understanding in the semi-annual report." This term indicates that the regulator has confirmed the potential effect that accounting terms may have on information users. However, there are no indications of what kind of accounting terms should be explained and how they can be explained.

Some Western scholars also provide clues for solving this problem. Lee and Tweedie (1977) pointed out that not only do understanding differences exist between accounting terms and daily life terms, but also "different investors have different understanding of different types of accounting terms." Dupree (1985) creatively classified accounting terms as technical terms and descriptive terms, among which technical terms refer to the specialized terms and descriptive terms refer to daily life terms used for describing specialized terms. For instance, "unrealized earnings" is a technical term, while "customer advance payment" belongs to descriptive terms. The latter is obviously more comprehensible than the former. Dupree discovered through questionnaire survey that the bias towards technical terms reduces along the decline of specialization level and the bias towards descriptive terms increases along with the decline of specialization level. In other words, highly accounting-specialized readers favor concise and effective accounting terms in annual reports, while readers with low accounting specialty prefer more descriptive terms.

The author suggests that accounting terms should be classified into three categories in terms of understandability in China. The first category includes those accounting terms that people often come across in daily life, such as income and expense; the second category should include those that do not often occur in people's daily life but can be easily understood literally by most adults, such as accumulated depreciation and intangible asset; the last category refers to those that rarely occur in daily life and cannot be understood literally, such as reserves, deferrals and current ratio. If a glossary of accounting terms with different understandability levels can be established, people will be able to use accounting terms more accurately in annual reports. All those accounting terms in the advanced rank should be provided with annotations at the end of annual reports. Moreover, the annotation should only include non-accounting terms or accounting terms in the lower ranks and no accounting terms from the same advanced rank should be used. By doing this, the accuracy and preciseness of annual reports will not be harmed, and great convenience will be provided for using the information in the annual reports by non-professionals.

4.2 Providing specialized and simplified types of annual reports on the basis of specialized annual reports

According to the theories of mass media, a balance between information understandability and comprehension capacity of investors should be achieved in

order to convey the annual report information smoothly to the investors. Thus, altering the usage of accounting terms in annual reports is essentially to seek a balance point between understandability and comprehension capacity. But this does not mean that there is only one balance point. The comprehension capacity of Chinese investors is at different levels, and it is very difficult to satisfy the majority even if annual reports that suit the average comprehension capacity of investors are provided. In order to provide company annual reports with the understandability corresponding to investors with different levels of comprehension capacity, establishing a multilayer annual report system is worth trying. The multilayer reporting system can give attention to both information accuracy and understandability.

4.2.1 Full-text annual report

Highly specialized full-text annual reports establish the foundation for the company multilayer annual report system. Currently, the typical annual report in China, honed through years of practice, is an effective method of information release. The content and format of annual reports have mostly been stipulated by laws and regulations, which have developed a key function in protecting investors' interest. Annual reports with accurate and concise language are mostly suitable for the release of professional company information.

4.2.2 Annual report abstract

On the basis of the full-text annual report, multilayer simplified annual reports for different specialized readers should be developed. The U.S. Securities and Exchange Commission allowed companies to provide two sets of reports in 1987. One is a full-text report compiled in accordance with the Generally Accepted Accounting Principle, and the other is a concentrated simplified report with accounting statements and notes. Although the simplified report loses somewhat in content, the understandability of company information can be greatly improved.

At present, most simplified annual reports used in many countries are annual report abstracts. Compared with Chinese company full-text annual reports and annual report abstracts, it can be noticed that the major parts needed to be simplified are the financial statement and the accompanying notes, which are also the most incomprehensible parts for non-professional investors. The secondary part are those items like director's personal data, report of board of directors and items like company governmental structure that rarely change within a short period of time. But those directors' reports, which are comparatively understandable and can assist non-professional investors to understand the

company's situation, are retained more or less completely. It is noted that the basic concept of simplified reports is to emphasize important information and reduce content with low understandability and those unnecessary for investment decisions. Therefore, the full-text annual report is the foundation of the multilayer reporting system and the annual report abstract is the secondary expression form that is based on the annual report. Whether or not to provide more multilayer simplified reports under "abstract" or design several levels of simplified report should take cost-effectiveness as the final benchmark criterion. Although more multilayer reporting systems will be beneficial to the smoothness of information communication between companies and investors, they will also cause an increase in information cost, such as the cost of preparing reports, audit charge and potential law suits.

4.3 Using graphs to represent financial indexes as an auxiliary measure for investors to understand annual reports

Both foreign and domestic scholars have proposed using graphs to show a company's main financial indexes. With the help of various forms of graphs, investors can quickly make judgments on the current overall operational situation of the company.

4.3.1 Facial format (Smith, 1986)

Simple face lines can be used to indicate different aspects of company financial condition and operating results. For example, using the inclining angle of the eyebrow to stand for company asset flow, the size of eyes to represent the leverage of the company, the size of ears to judge the asset increment, the length of nose to show the amount of working capital, smiley or crying mouth to represent profit or loss and the size of face to judge the speed of asset turnover. All in all, if the company's face format is smiling with five big facial features, then the general company situation is good; in contrast, if the face is depressed and wretched, the company must be in a difficult situation.

4.3.2 Radar graph (Ma et al., 1995)

Three concentric circles can be drawn, each one of larger diameter, and several lines representing different financial indices can be drawn from the centre of the circle. The intersection point of each beeline and outside circle represents the optimal value of each different index, the intersection point with the middle circle is the standard value, and the intersection point with the inside circle is the lower limit of different indexes. When drawing the graphs, indicating the actual value of

different financial indexes proportionally on each beeline and then connecting all actual value points together, the polygon gained can vividly reflect the current operation situation of the company. The bigger the polygon is, the better the general operation situation of the company is. The common features of company facial format and radar graph can show company data multi-dimensionally. After determining the selected financial indexes and their corresponding graph location, either company facial format or radar graph can be automatically drawn by computer programs. If the governmental regulator can standardize these indexes and graph locations, then the graphs of different companies are comparable. Although the graphic method makes maximum compromise on information completeness and accuracy, it may be a great help for those investors who are "illiterate" in accounting terms.

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