Asian Business Research; Vol. 8, No. 1, 2023
ISSN 2424-8479 E-ISSN 2424-8983
Published by July Press

Exploring the Impact of Annual Report Inquiries on Audit Risk - Based on the Perspective of Anchoring Effect

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Received: April 19, 2023 Accepted: May 18, 2023 Online Published: June 28, 2023

doi:10.20849/abr.v8i1.1357 URL: https://doi.org/10.20849/abr.v8i1.1357

2021 Guangzhou Huashang College Youth Academic Project "Exchange Regulatory Inquiry Letter and Auditor Risk Control" (Grant No: 2021HSQX07)

Construction of experimental class of excellent auditing talents HS2022ZLGC15

Abstract

The assessment of material misstatement risk is a critical judgmental matter for CPAs, but the uncertainty and subjectivity of judgment lead to a qualitative description of risk evaluation. By sorting out the inquiry letters issued by stock exchanges to listed companies in recent years, constructing a material misstatement risk system using fault trees and quantifying them using fuzzy hierarchical synthesis analysis, this paper not only provides a new reference basis and new audit ideas for annual audits, but also helps CPAs to better identify and evaluate material misstatement risks and improve the effectiveness of audits during annual audits.

Keywords: material misstatement risk, query letter, fuzzy hierarchy analysis

1. Introduction

Chinese government departments pointed out "innovative supervision" and put the active prevention and resolution of risks in the first place in the three major battles, especially the role of front-line supervision of exchanges as an important measure to fill the shortcomings of capital market supervision. In addition, the Chinese government departments proposed to improve the national security system, strategic system as well as the risk monitoring and early warning system. The new non-administrative regulation represented by the inquiry letter, which was added to the regulatory system in 2013, has become one of the important tools of the regulatory mechanism as an innovative way of supervision by the Securities and Exchange Commission. As a "soft supervision" tool, the inquiry letter system requires listed companies to provide explanations on relevant matters, alleviating the problem of information asymmetry and enhancing the information efficiency of the market (Wenjing Xu, 2022). The letter of questioning revolves around questions that are not yet serious, and to a certain extent hits the pain points of the company (Haibo Yang, 2018). Questioned firms generally also require CPAs to answer questions, and firms being questioned already indicate that the firm has potential risks (Yueling Zhang, 2022), and the auditor will increase the audit fee to compensate for the risks. The questioned companies often have shortcomings in information disclosure, corporate governance, etc. (Shuo Chen, 2018), and companies that receive questioning letters often have the risk of material misstatement, and how the auditor can reasonably apply this information when taking on business, determining fees, and risk assessment is an issue worth studying.

Mingzeng Yang suggested that using the anchoring effect can improve the efficiency of auditor's audit judgment (Yang et al., 2007). Hong Yin tries to use the previous annual report and its inquiry letter as an "anchor" to assess the risk of the audited entity in an uncertain environment (Yin et al., 2019). Based on the above research, this paper constructs a fault tree for assessing the risk of material misstatement using the questionnaire as the "anchor" and quantifies the risk of material misstatement using fuzzy hierarchical analysis, starting from the anchoring effect theory, thus providing supplementary assistance to CPAs during the annual audit.

The chapters of this paper are organized as follows: Chapter 1 analyzes the factors affecting the risk of material misstatement using the pharmaceutical industry's 2019 to 2021 inquiry function as a case study; Chapter 2

quantifies these factors summarized using the fuzzy integrated evaluation method and the fuzzy hierarchical analysis method in conjunction with fault trees to obtain more accurate analysis results; Chapter 3 summarizes the work of this paper.

2. Study Model Construction Selection

Fault tree analysis is a logic diagram that shows the cause-and-effect relationship of various factors for a certain event. The use of fault tree analysis can, to a certain extent, help CPAs clarify the key risk points of material misstatement and grasp the significant risks in a more complete and comprehensive manner.

The equation of new audit risk model proposed by the International Auditing and Assurance Standards Board (IAASB) in 2003 is "Audit Risk = Material Misstatement Risk x Inspection Risk", has been widely adopted and applied. Material misstatement risk involves inherent risk and control risk, which means the risk of the financial statements may be materially inaccurate prior to the audit. An enterprise is not fully subject to such risk to the CPA. This risk can be influenced not only by factors external and internal to the business, but also by subjective and objective factors. Only by understanding the audited entity and its environment can the CPA accurately assess the risk of material misstatement and, to the extent possible, control the adverse effects of it. Accounting information is vague and uncertain due to the imprecision of the audit object. Therefore, a fault tree analysis is performed on companies based on the new audit risk model. We reviewed and compiled the 2019 to 2021 inquiries in the pharmaceutical industry, and constructed a fault tree analysis model based on a qualitative entry of the contents of the inquiries, under the framework of audit risk model of goodwill impairment. The fault tree is a top-down deductive analysis method that provides a more global and intuitive understanding of the relevant content. Our model identifies all questions as risk points and classifies them into impact factors to clarify the impact factors of material misstatement risk.

The following fault tree analysis structure for the risk of material misstatement was established by integrating the SEC's evaluation of companies:

a) External risk indicators of material misstatement risk at the financial statement level. The external risk mainly reflects the degree of impact of external macro policies and overall industry risks on the risk of material misstatement, which is uncontrollable for most enterprises. In the selected letters of inquiry from the pharmaceutical industry, we summarized the questions from the SEC through systematic analysis, including macro policy risk, pharmaceutical industry risk, and drug compliance risk, so these three aspects are considered as risk influencing factors.

b) Internal risk indicators for the risk of material misstatement at the financial statement level. Internal risk comes from an enterprise's own operating business. Compared to external risks, companies can often reduce and control this risk by certain means. In the query letters selected for the sample, the SEC raised corresponding questions on the areas of corporate integrity and ethics, competence, the level of governance involvement, management's philosophy and business style, organizational structure and human resources. We add the aspects questioned by the SEC to the set of factors that constitute the risk of material misstatement impact.

c) Control risk indicator for the risk of material misstatement at the deemed level. Control risk is the probability that a misstatement of a type of transaction, account balance, or disclosure of a determination, which is material either alone or together with other misstatements, is not prevented or detected and corrected in a timely manner by internal controls. For the selected pharmaceutical companies, after categorization and summarization, it was found that the SEC mainly inquired about the soundness and effectiveness of their control systems, the subjectivity of management's risk assessment, and whether accounting treatments were performed in an irregular manner. Therefore, these inquiry points are included as part of the factor set.

d) Inherent risk indicators for the risk of material misstatement at the deemed level. Inherent risk is the likelihood of material errors in the accounts, classes of transactions and overall financial statements of the enterprise due to internal factors and objective circumstances, without regard to the internal control structure. The questioning of inherent risk in the questionnaire focuses on the enterprise's accounting treatment of significant and unusual transactions, the application of accounting estimates and judgment choices, and the treatment of items that are vulnerable to loss or misappropriation. The questioned aspects of these inherent risk indicators we have taken as influencing factors and explored their impact.

Table 1. Fault tree analysis architecture for material misstatement risk

Risk of material misstatement of financial statements			
Risk of material misstatement at the financial statement level		Risk of material misstatement at the recognition level	
External Risks	Internal Risks	Controlling Risks	Inherent Risks
1.Macro policy risk 2.Pharmaceutical industry risk 3.Drug compliance risk	1.Integrity and Ethics 2.Competence 3.Level of governance involvement 4.Management's philosophy and business style 5.Organizational Structure 6.Human Resources	1.Soundness and effectiveness of the control system 2.Subjectivity of management risk assessment 3.Irregular implementation of accounting treatment	1.Accounting for significant and unusual transactions 2.Application of accounting estimates and judgmental choices 3.Treatment of items vulnerable to loss or misappropriation

We summarize the data characteristics used in the above failure analysis tree in Table 1. Due to the qualitative measurement of judgment and the fuzzy nature of the risk of material misstatement, CPAs are more likely to use the qualitative language of "medium, high, low" to measure the risk of material misstatement, and therefore need quantitative models to assist in the analysis and provide a more objective description. Here, a combination of fuzzy integrated evaluation method and fuzzy hierarchical analysis is needed to estimate quantitative results based on the fuzzy evaluation of multiple factors using fuzzy mathematics.

3. Quantification of the Risk of Material Misstatement

Fuzzy theory, proposed by mathematician Chad in 1965, provides an effective method for studying the objective world of uncertainty, imprecise matters. Based on this, the fuzzy comprehensive evaluation method and the fuzzy hierarchical analysis method were developed. Among them, fuzzy comprehensive evaluation is capable to convert qualitative evaluation into quantitative indicators. The fuzzy hierarchical analysis method is a combination of fuzzy comprehensive evaluation and hierarchical analysis, based on the fuzzy comprehensive evaluation method to split the systemic and complex problems into structural levels with recursive relationships, and the structural levels compare the importance of two factors to determine their importance more scientifically.

3.1 Determining Index Weights by Using Hierarchical Analysis Method

First, establish a hierarchical structure. For the questionnaire, the number of problems contained in the questionnaire, the severity and ease of resolution can provide auditors with new ideas in assessing risk, judging the size of audit risk and the importance level of each risk point. For the auditor can better draw on and judge the audit risk. This paper establishes the financial statement material misstatement risk indicator system as 2 level 1 indicators 4 level 2 indicators and 15 level 3 indicators (the set of factors is shown in Table 2 below). Next, the risk assessment stage is conducted after determining the risk structure level of material misstatement of financial statements. Since how accurately to judge the risk level of each risk factor depends on the professional judgment of the auditor, the adoption of expert assessment method can reduce the subjective bias according to the use of fuzzy hierarchical analysis. Therefore, the judgment matrix of this paper adopts the expert scoring method, and 16 experts are invited to evaluate, including professors and teachers from universities with rich audit research experience, auditors from accounting firms, and internal audit department managers with rich experience in enterprises. The general 1-9 measurement criteria were adopted for the judgment criteria (the judgment criteria are listed in Table 3 below), i.e., the scoring was conducted using a two-by-two comparison framework. And the expert assessment data tracks were grouped and organized to obtain the judgment matrix of each index. Again, this paper used MATLAB 2019 for weight calculation and conducted consistency test, and the average random consistency index stratum numbers 1-15 utilized in this paper corresponded to R.I taking values, respectively. The factors were brought in separately to obtain the weight values and the consistency test results. When the CRs in the consistency test are all less than 0.1, the consistency test is passed. The following is an example of X11 to illustrate how to conduct the evaluation of indicator weights. Each expert compares the importance of m1, m2 and m3 under the secondary index X11 by two-by-two (the same for X12, X21 and X22); then there are four secondary indexes X11, X12, X21 and X22 under X1 and X2 in the primary index for two-by-two comparison of the importance between the indexes to be evaluated individually. In the two-by-two comparison to construct the

judgment matrix, among the external risks, the macro policy risk indicator was assigned the highest value, not because the other two indicators were not important, but because the macro policy risk in the external risks would directly or indirectly affect the pharmaceutical industry risk and drug compliance risk. The scoring of the experts was integrated to obtain the judgment matrix of each level. Using the square root method to find the maximum eigenvalue = 3.0385, the consistency test was conducted, and CI = 0.0193 and CR = 0.037 < 0.1, which passed the consistency test. Thus, for external risks, the weight of macro policy risk, pharmaceutical industry risk and drug compliance risk are 63.7%, 25.83% and 10.47%, respectively. Using the same approach as above, a weighting table can be derived as shown in Table 4 below.

Table 2. Risk factors for material misstatement set

Finance Risk of material misstatement of statements X	Risk of material misstatement at the financial statement levelX1	External Risks X11	m1	Macro policy risk
			m2	Pharmaceutical industry risk
			m3	Drug compliance risk
		Internal Risks X12	m4	Integrity and Ethics
			m5	Competence
			m6	Level of governance involvement
			m7	Management's philosophy and business style
			m8	Organizational Structure
			m9	Human Resources
	Risk of material misstatement at the recognition level X2	Controlling Risks X21	y1	Soundness and effectiveness of the control system
			y2	Subjectivity of management risk assessment
			y3	Irregular implementation of accounting treatment
		Inherent Risks X22	y4	Accounting for significant and unusual transactions
			y5	Application of accounting estimates and judgmental choices
			y6	Treatment of items vulnerable to loss or misappropriation

Table 3. Judgment criteria score table

scale	Meaning
1	Both factors are equally important compared to the former and the latter
3	The two factors are slightly more important than the former than the latter
5	The former is more important than the latter in comparison with the two factors
7	The former is much more important than the latter in comparison with the two factors
9	The former is definitely more important than the latter in comparision with the two factors
2, 4, 6, 8	Between the above adjacent
reciprocal	If the factor between i and j get M_{ij}, then j and i turn to their reciprocal

Table 4. Indicator weights

Tier 1 Indicators	Weights	Tier 2 Indicators	Weights	Tier 3 Indicators	Weights
Risk of material misstatement at the financial statement level	0.8	External Risks	0.3333	Macro policy risk	0.637
				Pharmaceutical industry risk	0.2583
				Drug compliance risk	0.1047
		Internal Risks	0.6667	Integrity and Ethics	0.4332
				Competence	0.0808
				Level of governance involvement	0.2235
				Management's philosophy and business style	0.0738
				Organizational Structure	0.1509
				Human Resources	0.0621
Risk of material misstatement at the recognition level	0.2	Controlling Risks	0.75	Soundness and effectiveness of the control system	0.1571
				Subjectivity of management risk assessment	0.5936
				Irregular implementation of accounting treatment	0.2493
		Inherent Risks	0.25	Accounting for significant and unusual transactions	0.5816
				Application of accounting estimates and judgmental choices	0.3090
				Treatment of items vulnerable to loss or misappropriation	0.1095

3.2 Quantification of Evaluation Results Using Fuzzy Analysis and Comprehensive Evaluation Method

We set the evaluation criteria for risk factors, which is to evaluate the level of each risk factor from L1 to L5, representing the risk "highest, high, medium, low, lowest", and set the quantitative index, L={L1,L2,L3,L4,L5}={0.9,0.7 ,0.5,0.3,0.1}. The experts evaluate the risk for each tertiary factor, then the aggregated frequencies chosen by the experts can form a fuzzy evaluation matrix. Since experts from the accounting industry may not be representative of pharmaceutical expertise, we expanded the number of experts to 18 by adding pharmaceutical company-related individuals (as in Table 5).

Table 5. Fuzzy evaluation matrix for scoring external risk factor indicators at the financial statement level

Z11	0.2	0.4	0.3	0.1	0
	0.1	0.1	0.4	0.2	0.2
	0	0.1	0.3	0.5	0.1

a). Tertiary evaluation

The tertiary evaluation fuzzy mapping table is shown in Table 6. The financial statement level external risk is evaluated as

$$R11 = S11 * Z11 = (0.637, 0.2583, 0.1047) * \begin{pmatrix} 0.2 & 0.4 & 0.3 & 0.1 & 0 \\ 0.1 & 0.1 & 0.4 & 0.2 & 0.2 \\ 0 & 0.1 & 0.3 & 0.5 & 0.1 \end{pmatrix}$$

$$= (0.1532, 0.2911, 0.3258, 0.1677, 0.0621)$$

The above evaluation results indicate that among the contents of the SEC's inquiries on external risks at the financial statement level, 15.32% of experts consider macro policy risk, pharmaceutical industry risk, and pharmaceutical compliance risk to be high, 29.11% consider them to be high, 32.58% consider them to be medium, 16.77% consider them to be low, and 6.21% of experts consider it low. That is, the majority of experts consider the external risks of macro policy risk, pharmaceutical industry risk, and pharmaceutical compliance risk to the risk of material misstatement at the financial statement level in the content of the questionnaire to be at a moderately high level. Ditto:

R12=(0.1387,0.3410,0.2042,0.2667,0.0494)

R21=(0.6435,0.4092,0.3908,0.0901,0)

R22=(0.1095,0.0946,0.4,0.3945,0.1)

Table 6. Fuzzy mapping table of expery comments

Tertiary indicators	Weights	Highest	High	Medium	Low	Lowest
		0.9	0.7	0.5	0.3	0.1
Macro policy risk	0.637	0.2	0.4	0.3	0.1	0
Pharmaceutical industry risk	0.2583	0.1	0.1	0.4	0.2	0.2
Drug compliance risk	0.1047	0	0.1	0.3	0.5	0.1
Integrity and Ethics	0.4332	0.2	0.5	0.2	0.1	0
Competence	0.0808	0	0.2	0.3	0.4	0.1
Level of governance involvement	0.2235	0.1	0.3	0.3	0.3	0
Management’s philosophy and business style	0.0738	0.3	0.2	0.1	0.3	0.1
Organizational Structure	0.1509	0	0.1	0.1	0.6	0.2
Human Resources	0.0621	0.2	0.3	0.1	0.3	0.1
Soundness and effectiveness of the control system	0.1571	0	0.3	0.5	0.2	0
Subjectivity of management risk assessment	0.5936	0.1	0.4	0.4	0.1	0
Irregular implementation of accounting treatment	0.2493	0.2	0.5	0.3	0	0
Accounting for significant and unusual transactions	0.5816	0	0	0.4	0.5	0.1
Application of accounting estimates and judgmental choices	0.3090	0	0.2	0.4	0.3	0.1
Treatment of items vulnerable to loss or misappropriation	0.1095	0.1	0.3	0.4	0.1	0.1

b). Secondary evaluation

The consolidated evaluation of financial statement level risk is:

$$R1 = S1 * Z1 = (0.3333, 0.6667) * \begin{pmatrix} 0.1532 & 0.2911 & 0.3258 & 0.1677 & 0.0621 \\ 0.1387 & 0.3410 & 0.2042 & 0.2667 & 0.0494 \end{pmatrix}$$
$$= (0.1435, 0.3244, 0.2447, 0.2337, 0.0536)$$

The above evaluation results show that 14.35% of the experts believe that external and internal risks will have a high level of impact on financial statement risk, 32.44% believe that it is high, 24.46% believe that it should be medium, 23.37% believe that it is low, and 5.35% believe that it is low. That is, the majority of experts believe that external and internal risks will have a medium to high level of impact on financial statement risk. Ditto:

R2=(0.51,0.3305,0.3931,0.1662,0.25)

c). Primary evaluation

Primary evaluation of the risk of material misstatement:

$$R = S * Z = (0.8, 0.2) * \begin{pmatrix} 0.1435 & 0.3244 & 0.2447 & 0.2337 & 0.0536 \\ 0.51 & 0.3305 & 0.3931 & 0.1662 & 0.25 \end{pmatrix}$$
$$= (0.2168, 0.3256, 0.2743, 0.2202, 0.0928)$$

The above evaluation results indicate that 21.68% of the experts believe that the risk of material misstatement at the financial statement level and the risk of material misstatement at the recognition level have a high degree of influence on the risk of material misstatement of financial statements; 32.56% believe that the degree of influence is high, 27.43% believe that the degree of influence is moderate, 22.02% believe that the degree of influence is low, and 9.28% believe that the degree of influence is low. That is, most of the experts believe that the level of impact of the risk of material misstatement at the financial statement level and the risk of material misstatement at the recognition level on the risk of material misstatement in the financial statements is moderately high.

d). Ultimate risk

That is, the final risk is 0.4942, and the risk of material misstatement is evaluated as medium risk using the settings of scoring indicators in Ji Yaowu and Wang Huijin's comprehensive evaluation model of audit risk based on dynamic fuzzy evaluation.In response to this material misstatement risk assessment result, the auditor accordingly considers the measures that should be increased to address its material misstatement risk. Since the final assessment level is moderately high, audit procedures should be performed to understand whether the audited entity has been issued a letter of inquiry by the SEC, and additional substantive procedures should be added as appropriate in response to the content of the letter of inquiry. In the process of risk assessment, attention should be paid to the risk of macro policies and active understanding of the current state of the industry and the special risks of the industry. During the audit process, professional judgment is always maintained, and adequate substantive procedures should be implemented to improve audit quality with respect to management's integrity and ethics and competency. At the same time, auditors can draw on fuzzy hierarchical analysis in the audit process, for example, fuzzy evaluation of questionnaire supervision, etc., to assist in identifying audit risks and the implementation of substantive procedures to improve audit quality and provide relevant corrective suggestions for the audited companies.

4. Conclusion

This paper evaluates the risk of material misstatement using the fuzzy integrated analysis method. From the anchoring effect theory, combined with the fault tree analysis, by breaking down the risk of material misstatement into its various elements for study, it is possible to clearly see the risk points that need to be focused on in the stock exchange perspective, which serves as a risk reminder for the auditor when conducting the audit. Letters of inquiry can disclose in greater detail various aspects of the company's business activities, such as methods and selection of important indicators. The points of inquiry in a letter of inquiry are also significant risk points in an audit. The auditor should pay more attention to the letter of inquiry to assess the risk of material misstatement of the audited entity by focusing on the stock exchange questioning points, and on the other hand, when the audited entity is questioned, the accounting firm should be more vigilant to expand the

scope of the audit to increase the unpredictability and issue an appropriate audit opinion.

References

Chen, C. (2018). Research on the control of material misstatement risk based on fault tree and fuzzy analysis. *Communication of Finance and Accounting*, (25), 19-21.

Li, S.-Y., Jie, H., & Lu, L.-N. (2018). Construction and Application of Natural Resource Asset Audit Index System-Based on Fuzzy Hierarchy Analysis. *Friends of Accountants*, (10), 27-30.

Xiao, F., & Chen, L.-X. (2018). .Research on Audit Risk Assessment in "Internet Plus" Environment-Based on Fuzzy Hierarchy Analysis. *Friends of Accountants, 9*, 94-98.

Zheng, X.-Y. (2012). Research on the evaluation model of economic responsibility audit based on fuzzy hierarchical analysis method. *Communication of Finance and Accounting*, (4), 27-29.

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