

Comparison of the Financial Data Quality in Audited and Unaudited Companies

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Abstract: *Accounting is, or based on accounting legislation should be, a description of reality in which the characteristic accounting principles and methods are used. Base on the quality of financial information, it is possible to measure business performance, financial position, calculate the expenses and revenues, incomes and expenses and profit or loss to manage and make decisions. The quality of financial information also depends on the quality of management and on the presentation of financial data and their conformity with the reality and applicable laws. This article describes how to use the analytic hierarchy process (AHP) to get an overview to the quality of the reported financial information. The most important step is, on the basis of Saaty's method determine the weights of the criteria in each group and then by using the AHP method determine their importance. The data quality in companies is determined on the drafted model and then the differences between data quality of audited companies and data quality of unaudited companies are detected based on the statistical methods.*

Key words: Analytic Hierarchy Process · Saaty's Method · Criteria Quality of Data · Audited and Unaudited Companies

JEL Classification: M10 · M41

1 Introduction

Quality financial information in its essence enables to correctly measure the business performance and financial position. Based on this information it is possible to determine how the company is able to generate profit, finance its activities and assessment of potential risks that may arise in the future. The basic element of the financial information evaluation is the level of data quality perceived by users of financial information. Accounting could be defined as a structured system of information that is captured in monetary terms and shows the process of the business. It should be said that quality financial data reduce the risk for potential investors, for the management and their decisions and also increase the ability of companies to raise finance at a reasonable cost of capital.

2 Methods

This paper discusses how to use the analytical hierarchy process method in order to obtain a quality overview of reported data. The main goal of this paper is based on a survey determining the criteria that affect the quality of financial data and have impact to management. The concentration of interest is to determine the quality of the financial data of enterprises on the basis of established criteria and then determine whether there is a correlation between the quality of financial data in audited and unaudited enterprises. Looking into the quality of financial data should demonstrate the impact of negative criteria on financial accounting and decision making in business management.

According Laptese (2009) the firm affects the quality of financial data throughout its life cycle. Donnelly et al. (2008) argue that the more quality information the managers have the more the level of risk and uncertainty in their decisions are reduced. Companies should follow the accounting data on the base of accounting standards. Increased emphasis on compliance with the financial discipline and internal control of financial data can significantly contribute to improving the quality of financial information, especially with regard to making decisions. For certain decisions, some financial information may be available but the same information may be insufficient for different decisions (Neely & Cook, 2011). Working with financial information required by managers not only a good initial carrying data, but also their timely replenishment.

Accounting is defined as a system which is characterized by using the accounting principles and methods. Nenadál et al. (2002) like Easton & Jarrell (1998) have the opinion that if the quality control is carried out effectively the company can have considerable results especially from the financial point of view. Enterprises that have

successfully established management systems achieve higher performance and better financial results. Accounting system (depending on the size of the company) is designed as a process of collecting information and creating financial reports. These activities are called as a cycle management accounting information by Short (1990).

The basic objective of financial accounting is to provide relevant information regarding the property, sources of finance, expenses, revenues and profit or loss based on the principle of true and fair view of accounting. According to Robbins & Coulter (2004) companies have to control the process of monitoring activities to determine whether all activities in accounting have been carried out according to the legislation and then correct variations. Internal control of data from accountants and managers at all levels of management causes the feedback which provides the possibility of a reality.

Method AHP (Analytic Hierarchy Process) is a method that solves tasks of multicriteria decision making. The method AHP, which was used to determine the significance of individual weights of negative criteria is a method that solves tasks of multi-criteria decision making. This method uses the decomposition of complex unstructured situation into simpler components that will be arranged to a hierarchical structure. At each level of the hierarchical structure, pairwise comparisons method is used in a way that each component is compared with the other components. The result of this mutual comparison is the weights of individual criteria. These weights determine which criteria have the biggest influence on the quality of financial data (Saaty, 2006). The method used in pairwise comparisons follows a nine-point scale from 1 to 9 composed of only odd numbers, but it can be also use the intermediate stage, even numbered:

- 1 - the criteria are equivalent,
- 3 - one criterion is weakly preferred to another,
- 5 - one criterion is strongly preferred over the other,
- 7 - one criterion is very strongly preferred over the other,
- 9 - one criterion is absolutely preferred over another.

The decision makers decide about the preferences by the pairwise comparison and the results should be written to the matrix subsequently:

$$W = \begin{bmatrix} w_1/w_1 & w_1/w_2 & \cdots & w_1/w_n \\ w_2/w_1 & w_2/w_2 & \cdots & w_2/w_n \\ \vdots & \vdots & \ddots & \vdots \\ w_n/w_1 & w_n/w_2 & \cdots & w_n/w_n \end{bmatrix} \quad (1)$$

where:

w_{ij} Saaty's matrix element, $w_{ii} = 1$ and $w_{ij} = 1/w_{ji}$

Weights of the criteria can be calculated based on the normalized geometric mean lines of Saaty's matrix. It is a logarithmic method of the least squares given by:

$$b_i = \sqrt[n]{\prod_{j=1}^n w_{ij}}, \quad (2)$$

where:

b_i geometric mean of the i-th row
 n number of rows

By normalization of b_i is then calculated weights according to the following:

$$v_i = \frac{b_i}{\sum_{i=1}^n b_i} \quad (3)$$

where:

$v_i = (0, 1)$

Consistency index - this index should reach a maximum value of 0.1 and it is calculated by the following equation.

$$I_s = \frac{\lambda_{\max} - n}{n - 1} \quad (4)$$

where:

λ_{\max} maximum number of inherent matrix
 n number of rows

Standard deviation - standard deviation is the square root of the variance and dispersion rate of returns to scale of the original data.

$$s = \sqrt{s^2} = \sqrt{\frac{\sum(x_i - \bar{x})^2}{n-1}}, \quad \bar{x} = \frac{\sum_{i=1}^n x_i}{n} . \quad (5)$$

3 Research results

A survey is aimed at uncovering incorrect accounting, discovering the quality of financial data in audited and unaudited companies and their comparison.

Based on the study of professional and scientific literature, but also based on consultations with experts like auditors and managers, the groups of data quality in financial accounting were compiled and within these groups the various negative criteria which have the biggest impact to the quality of financial and on the management as well were created. After combining these two perspectives and understanding their relation the items can be divided to the following groups and criteria:

Group F1 Errors and fraud

F11 - Accounting fraud by management, unethical behaviour of managers

F12 - Accounting fraud by employees, unethical behaviour of employees

F13 - Creative accounting

F14 - Accounting errors arising out ignorance, human error accounts

Group F2 Accounting Methodology

F21 - Methods of depreciation

F22 - Methods of evaluation

F23 - Methods of accounting organization, processing technique

F24 - Internal directive

F25 - Internal control

Group F3 Influence of information system

F31 - Lack of information, poor internal communication

F32 - Legislation - too wide or narrow, confusion, frequent changes

F33 - Requirements for managers in the enterprise's information system

A survey of financial accounting conducted on the basis of structured interviews with 78 managers, CFO's and accounting leaders. Interviewed respondents identified the importance of individual ratios of criteria within each group; these ratios were then compiled to Saaty's matrix (3 matrix for each respondent) and points and weights for the criteria were designated. Thus 234 Saaty's matrix were compiled. On the drafted model of the quality of financial data, there is seen that the group of managers, CFO's and accounting leaders set creative accounting in the group errors and fraud (46,41 %), methods of evaluation in the group accounting methodology (33,91 %) and lack of information, poor internal communication in the group influence of information system (50,21 %) as the criteria which the quality of financial data affect the most.

In next step, the AHP method was applied. On the basis of structured interviews with 12 auditors (mainly from KPMG and private external auditors) 12 Saaty's matrix were compiled. On the drafted model of the quality of financial data, there is seen that the group of auditors set the group of criteria which the quality of financial data affect the most group F2 accounting methodology (42,78 %), then group F1 errors and fraud (39,55 %) and group F3 influence of information system (17,67 %). For more information you can see Vlčková (2014).

By applying the AHP method, there the model of the quality of financial data was proposed:

$$QFD = 0,3955 * (0,2756 * F11 + 0,1787 * F12 + 0,4641 * F13 + 0,0816 * F14) + 0,4278 * (0,2072 * F21 + 0,3391 * F22 + 0,1135 * F23 + 0,0818 * F24 + 0,2584 * F25) + 0,1767 * (0,5021 * F31 + 0,1344 * F32 + 0,3635 * F33) \quad (6)$$

where:

QFD Quality of financial data

F11...F33 individual criteria within the specified categories

This model was used for 71 companies; 37 companies are audited and 34 companies are unaudited. There were companies from South Bohemian Region, with number of employees from 10 to 1999, with annual sales from 10 to 1000 mil. CZK and principal activity in according to CZ NACE was Section C – Manufacturing. Values of the criteria was determined directly in a company, preferably based on surveys from the ranks of specialists in the company. For the individual criteria have to be valid that they are between the interval (0, 100). The higher the value of financial data quality is the worst quality of accounting date in the company is. It is on base that the criteria have negative position in the company. The results of their data quality are in the following table. As you can see, the final value quality of financial data in companies could be in the range from 0 to 4. The best value in audited companies have the company 2 with value 0,5524 and in unaudited companies have the company 15 with value 0,3649. On the other side, the worst value in audited companies have the company 6 with value 2,1511 and in unaudited companies have the company 28 with value 2,7436.

Table 2 Quality of financial data in audited and unaudited companies

Audited companies						Unaudited companies					
Comp.	QFD	Comp.	QFD	Comp.	QFD	Comp.	QFD	Comp.	QFD	Comp.	QFD
1	1,6247	14	0,955	27	1,4238	1	1,6493	14	1,135	27	1,4955
2	0,5524	15	1,1245	28	1,8849	2	1,5143	15	0,3649	28	2,7436
3	1,3112	16	1,2731	29	1,1481	3	0,915	16	1,731	29	1,833
4	1,6738	17	0,7589	30	0,6858	4	1,1777	17	1,3222	30	1,5658
5	1,3207	18	1,3675	31	1,8876	5	0,6871	18	1,9307	31	1,5845
6	2,1511	19	1,649	32	1,2591	6	1,5454	19	1,7632	32	1,6916
7	1,7852	20	1,3132	33	1,2794	7	1,5722	20	1,5526	33	0,925
8	0,6071	21	1,2264	34	0,9444	8	1,3012	21	1,2406	34	2,1717
9	1,2063	22	0,5857	35	1,7875	9	1,3027	22	0,6012		
10	1,4035	23	0,6639	36	1,1263	10	2,1254	23	0,6791		
11	1,7034	24	1,1697	37	0,9886	11	1,9013	24	0,5534		
12	1,2765	25	1,3035			12	0,9816	25	1,4328		
13	2,0351	26	1,2674			13	2,209	26	1,6628		

Source: Own processing

In the next step, range for financial data quality was compiled:

0 – 0,8 very good quality,
0,81 – 1,6 good quality,
1,61 – 2,4 average quality,
2,41 – 3,2 bad quality,
3,21 – 4 very bad quality

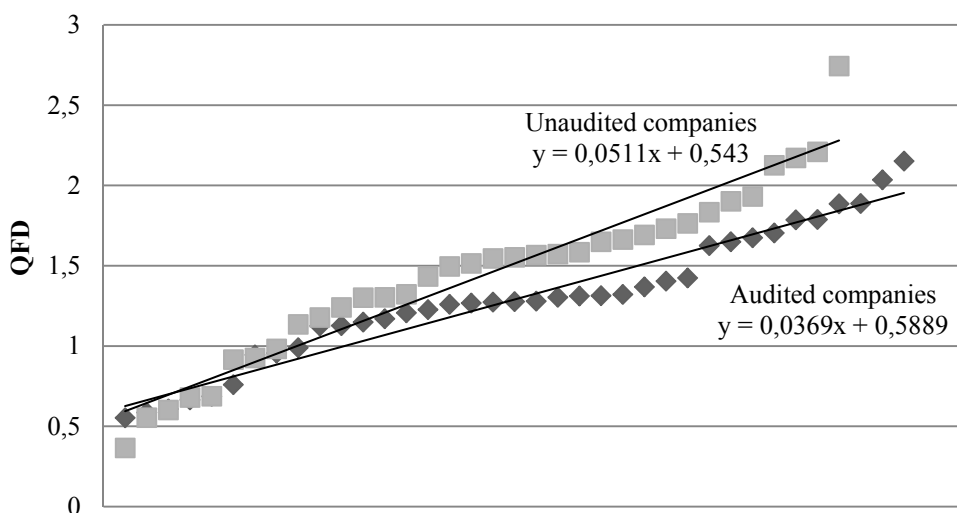
and the quality of financial data in audited and unaudited companies were evaluated. The results are in the following table and graph.

Table 3 Evaluation of financial data quality in audited and unaudited companies

Range QFD	Audited company - number	Audited company - %	Unaudited company - number	Unaudited company - %
Very good quality	6	16,22%	5	14,71%
Good quality	21	56,76%	17	50,00%
Average quality	10	27,03%	11	32,35%
Bad quality	0	0,00%	1	2,94%
Very bad quality	0	0,00%	0	0,00%
Total	37	100%	34	100%

Source: Own processing

Graph 1 Evaluation of quality of financial data in audited and unaudited companies



Source: Own processing

In the table 3 and graph 1, it is seen that unaudited companies have worse quality of financial data than audited companies. To verify this, in the final step, the statistical method T-test was used. It was found out maximal and minimal value, average of financial data quality and standard deviation. The results are in the following table.

Table 4 Statistic analysis of financial data quality in audited and unaudited companies

	Audited companies	Unaudited companies
Max value	2,1511	2,7436
Min value	0,5524	0,3649
Number of companies	37	34
Average	1,2898	1,4371
Standard deviation	0,4050	0,5183

Source: Own processing

The results of T-Test are as follows:

$t = -1,32087$

$DoF = 69$

$p = 0,190907$

F = 1,641652

p dispersion = 0,147970

For audited companies versus unaudited companies the T-Test shows statistically insignificant differences between them. P value is 0,19 at the significance level $\alpha = 0,05$.

4 Conclusions

The article is primarily concerned with comparison of the accounting data quality in audited and in unaudited companies. In the first step the criteria were determined, they were assessed and the quality determination model was compiled. Consequently, the values of the financial data quality in 71 companies were determined and divided into two groups – audited and unaudited companies. In the next step the values were compared and evaluated. It was found that average value of financial data quality in audited companies is on better level than average value in unaudited companies (1,29 and 1,44). Unaudited companies have also higher maximal value of financial data quality than audited companies (2,74 and 2,15) and it means that the higher this value is the worst financial data quality in a company is. Even this, by the statistical T-test was found out statistically insignificant p value 0,19.

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