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Dear readers,

we present our new issue of the Journal of Accounting and Management.

This is our eighth year of publishing and we are proud that in these turbulent economic times we have been able to maintain the publishing of our Journal and have been trying to constantly improve its quality.

This issue comes with yet another novelty - the indexation of our Journal in CiteFactor – Academic Scientific Journals. The indexation will certainly contribute to achieve the goals we set at the beginning of publishing activities of our Journal.

This issue of the Journal contains the selected papers presented at the International Scientific and Professional Conference Accounting and Management organized by the Association “Croatian Accountant” and the RRiF College of Financial Management, Zagreb and includes the papers directly submitted to the Journal. All the papers have been blindly peer-reviewed, requiring the acceptance by two independent reviewers to be published in this Journal.

Our Journal is striving to be a platform for publishing the results of new research and practice in the fields of accounting and management for all interested scholars, professionals and students on a completely open-access basis.

We thank all the authors, co-authors and reviewers for their enthusiasm to share their knowledge and welcome you to use your input to contribute to our joint work and permanent endeavour to maintain the high quality of our Journal.

Editor-in-Chief
Đurđica Jurić, PhD, College Professor
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A REVIEW OF THE RESEARCH ON DATA MINING TECHNIQUES IN THE DETECTION OF FRAUD IN FINANCIAL STATEMENTS

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Email: dkpoun@yahoo.com

ABSTRACT

Financial statement fraud is a type of fraud that contributes to the biggest losses for businesses. In today’s business environment it has become possible to detect financial statement fraud by using data mining methods, which has in turn led to more research in the past 15 years. The first step in the successful implementation of a system for detecting financial statement fraud using data mining methods is defining financial ratios that can be powerful indicators in the detection of financial statement fraud. Of 110 financial and non-financial ratios analysed in the previously published research, eight (8) can be identified as being the most significant for forming a model for the detection of fraud in financial statements using data mining methods.

Key words: financial statement fraud; detection of fraud in financial statement; financial ratios

1. INTRODUCTION

Financial statement fraud implies “the deliberate misrepresentation of the financial condition of an enterprise accomplished through the intentional misstatement or omission of amounts or disclosure in the financial statements to deceive financial statement users” (as defined by the Association of Certified Fraud Examiners, ACFE).
Of the three primary categories of fraud classified by the Association of Certified Fraud Examiners (corruption, asset misappropriation, and financial statement fraud), financial statement fraud caused the greatest losses for businesses. [1, p. 11]. Its influence on a vast number of stakeholders is inevitable, since, in only one year, it caused a median loss of $975,000, took approximately 24 months to uncover and represented 9.5% of the fraud cases analysed [1]. In the long run financial statement fraud can also directly and significantly influence the economy.

In today's environment, in which great amounts of information and data are accessible, it has become possible to develop data mining methods. Data mining is the process of investigating and analysing large amounts of data with the aid of automatic or semi-automatic methods with the goal of uncovering meaningful patterns. [2].

This is a relatively new field of computer science which combines statistics, artificial intelligence and data management methods. Although in practice data mining is commonly applied in banking (e.g. credit rating assessment), sales (e.g. cross-selling techniques), and medicine (e.g. early detection of diseases), it can also be used for the detection of different kinds of fraud in business. Transparency and public access to financial statements are the necessary preconditions for the use of data mining methods for automatically detecting businesses for which there are indications of financial statement fraud. For this kind of detection it is essential to be familiar with the characteristics (models) of fraud and to define indicators which suggest that they exist. After defining indicators which suggest financial statement fraud exists it is possible to connect these with data mining methods that, in the end, result in the creation of a model that will detect potential financial statement fraud.

There are two main critiques of the research that has been carried out to date related to the detection of fraud by data mining methods; firstly, a shortage of publically available data that would be the basis for carrying out research and secondly, a lack of methods and techniques that have been well-researched and published [3].

This paper reviews the key studies in the field of financial statement fraud detection using data mining methods carried out in the past 15 years. The aim of this paper, on the basis of the results of previous studies, is to confirm the hypothesis that financial analysis ratios are powerful indicators in the detection of financial statement fraud. Furthermore, the analysis proves that certain ratios are particularly significant in the detection of financial statement fraud.

2. ANALYSIS OF PREVIOUS STUDIES

During the past 15 years a great number of papers have been published in the field of financial statement fraud detection using data mining methods. The following published studies were analysed in this paper:
Table 1 – A summary of previous research on the use of data mining methods in the detection of financial statement fraud (according to year of publication)

<table>
<thead>
<tr>
<th>Reference</th>
<th>Study:</th>
</tr>
</thead>
</table>
The process of data mining itself goes through separate phases, defined by the methodology, which, in the end, result in the detection of new information. Although there are a number of methodologies, the most common is CRISP_DM (Cross-Industry Process for Data Mining), which encompasses the following phases:

i) understanding the problem and the data, which consists of defining the outcome of the project (business understanding) and becoming familiar with the available data with the goal of detecting useful data that are essential for forming a hypothesis (data understanding);

ii) data preparation, which implies building a final version of a useful database from the initial database. This in turn implies the transformation and cleaning-up of data, in addition to selecting tables, fields and attributes;

iii) modelling, which implies selecting techniques, since a number of data mining techniques may be appropriate for the same type of problem;

iv) evaluation, which implies a review of the executive steps for the creation of the model, in order to ensure that the model properly achieves the business objectives;

v) deployment, which implies organising and presenting the obtained knowledge in order for it to be implemented by the user.

<table>
<thead>
<tr>
<th>Reference</th>
<th>Study</th>
</tr>
</thead>
</table>
While carrying out data mining, according to previous research and an analysis of the CRISP-DM model, it is essential to do the following:

i) define good quality input that can indicate fraud, during the data preparation phase. This implies defining red flags and their influence on the detection of fraudulent financial statements. Red flags, as a rule, pertain to the selection of key financial analysis indicators and individual positions on the balance sheet and profit and loss (income) statement that are more exposed to fraud ([4], [9], [10], [11], [12], [14], [18], [20], [21], [22], [25]). In a minority of the studies, red flags pertained to specific non-financial ratios ([5], [6], [7], [8], [13], [15], [16], [17], [19]);

ii) select a data mining method in the modelling phase for the purpose of detecting financial statement fraud.

The reason for including non-financial data in this type of research is based on research carried out by Dong et al. [27], who stress that conventional audit practice unsuccessfully detects financial statement fraud primarily because the existing audit procedures and academic research are focused on statistical
analyses of structured financial ratios and on data related to market activity. On the other hand, some research suggests that non-financial ratios are not significant in the formation of data mining models [24].

In addition to financial and non-financial ratios, the existing research also focuses on large quantities of textual information about individual companies that are publically available [28]. This focus on mining not only financial ratios but also the textual format of financial statements makes the model more complex and in the end can result in less successful detection of financial statement fraud. Consequently, this paper focuses solely on the financial ratios that can help detect financial statement fraud.

As a rule, previous research (14) is based on the analysis of a large number of financial analysis indicators that the literature suggests could be significant in detecting financial statement fraud. As a second step, these studies, using various tests for the assessment of statistical significance (Kruskal-Wallis test, t-test, ANOVA test, Mann-Whitney U test), define financial analysis indicators that have a significant influence on the detection of financial statement fraud in relation to those which do not.

Furthermore, the analysed indicators have been segmented into seven (7) groups, as follows:

- activity ratios;
- liquidity ratios;
- profitability ratios;
- solvency ratios;
- assets structure ratios;
- cash flow ratios; and
- other ratios.

**Table 2 – A summary of important and unimportant activity ratios with respect to financial statement fraud detection**

<table>
<thead>
<tr>
<th>Ratios:</th>
<th>Important</th>
<th>Unimportant</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity ratios</td>
<td>34</td>
<td>29</td>
<td>63</td>
</tr>
<tr>
<td>Did profit before taxation increase by more than 10%?</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Did accounts receivables increase by more than 10%?</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Long-term assets turnover (t)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Capital and reserves turnover (t)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Receivables turnover (t)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Total assets turnover (t)</td>
<td>5</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Inventory turnover (t)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Activity ratios measure the ability of a company to convert various forms of assets into sales and/or cash, and they are focused on the ability of management to use their assets to generate sales and cash assets. The elements of financial statements, among those used to calculate activity ratios, that can be manipulated to carry out financial statement fraud are sales, accounts receivables and inventory. The basic presumption is that, when recording fictitious sales, the sales and accounts receivables positions will increase, while the inventory value may or may not be a product of manipulation. In the case of the sale of products, it is to be expected that only the values of accounts receivables and sales will increase, while the inventory value most likely will not be a product of manipulation but rather the true value of inventory will be reported.

Confirmation of such a conclusion can be seen in the fact that in five (5) of the studies ([9], [15], [14], [18], [21]) the inventory to sales ratio is considered to be a key indicator in the detection of financial statement fraud.

Another key indicator, which has been confirmed in seven (7) earlier studies ([10], [12], [15], [4], [18], [22], [23]), relates to the sales to total asset ratio. In order to increase sales it is necessary to invest in both short and long term assets. An
increase in sales without a coinciding increase in assets is only possible over a shorter period of time, which is why some of the studies suggest that the sales to long-term assets ratio is an essential indicator to observe ([16], [18]). Since income from fictitious sales cannot be collected in such cases, accounts receivables, as a rule, are higher than normal. Accordingly, an increase in the average accounts receivable payment days is to be expected, which is suggested by one of the studies [11].

In relation to revenue recognition, there is a parallel increase in sales and accounts receivables; consequently, in situations of financial statement fraud, ratios related to accounts receivables positions from earlier statements have been found to be significant indicators of fraud. The accounts receivables to sales ratio and the receivables turnover in particular were found to be significant, as has been suggested by seven (7) of the previous studies ([10], [11], [22], [8], [15], [23], [25]).

Table 3 - A summary of important and unimportant liquidity ratios in detecting financial statement fraud

<table>
<thead>
<tr>
<th>Ratios:</th>
<th>Important</th>
<th>Unimportant</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquidity ratios</td>
<td>10</td>
<td>14</td>
<td>24</td>
</tr>
<tr>
<td>Current ratio (t)</td>
<td>5</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Cash ratio (t)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Quick ratio (t)</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Net working capital (t)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Net working capital to total assets (t) ratio</td>
<td>2</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Inventory (t) to short term liabilities (t) ratio</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Author

**Liquidity ratios** relate to the ability of a business to meet its financial obligations when they become due, and therefore these ratios are calculated on the basis of particular current assets elements (inventory, accounts receivables, current financial assets, cash and cash equivalents), and current liabilities. Among the particular liquidity ratio positions observed, financial statement fraud directly influences the following:

- inventory value: there is an increased inventory value in situations where there hasn’t been a corresponding value adjustment of, for example, long-term inventory;
- accounts receivables: there is an increased value in accounts receivables in situations where there hasn’t been a value adjustment for bad debts
(e.g. in cases where clients file for bankruptcy or initiate pre-bankruptcy proceedings), or in cases of fictitious sales;

- current liabilities: there is a decrease in the value of current liabilities in situations where not all expenses have been recorded in the appropriate reporting period.

The liquidity ratio which most strongly detected fraud in seven (7) of the previous studies ([10], [9], [12], [11], [22], [23], [25]) was the net working capital to total assets ratio\(^1\).

**Table 4** - A summary of important and unimportant solvency ratios in detecting financial statement fraud

<table>
<thead>
<tr>
<th>Ratios:</th>
<th>Important</th>
<th>Unimportant</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solvency ratios</td>
<td>29</td>
<td>19</td>
<td>48</td>
</tr>
<tr>
<td>Logarithm of total debt (t)</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Debt to equity (t) ratio</td>
<td>7</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Total debt to total assets (t) ratio</td>
<td>2</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>Total assets (t) to total capital and reserves (t) ratio</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>EBIT to total interest costs (t) ratio</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Capital and reserves to total debt (t) ratio</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Retained earnings (t) to total assets (t) ratio</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Long-term debt (t) to total capital and reserves (t) ratio</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Long-term debt (t) to total debt (t) ratio</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Long-term debt (t) to total assets (t) ratio</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Short-term debt (t) to total assets (t) ratio</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total debt (t)</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Author

**Solvency ratios** measure the degree of indebtedness of a business, that is, they measure how much the business finances itself through its own sources (capital and reserves) and how much from external sources (current and long-term liabilities). A higher degree of external financing may increase the probability of financial statement fraud, since the risk is transferred from the owner of the capital onto the creditors [9]. In eleven (11) of the studies ([9], [12], [11], [4], [22], [14], [15], [23], [21], [25], [24]), the total debt to total assets ratio was suggested as the key indicator to detect fraudulent financial statements.

\(^1\) Working capital is calculated as total short term assets minus total short-term debt.
Table 5 - A summary of important and unimportant asset structure ratios in detecting financial statement fraud

<table>
<thead>
<tr>
<th>Ratios:</th>
<th>Important</th>
<th>Unimportant</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets structure ratios</td>
<td>28</td>
<td>18</td>
<td>46</td>
</tr>
<tr>
<td>Logarithm of total assets (t)</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Cash and cash equivalents (t)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Cash and cash equivalents (t) to short-term assets (t) ratio</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Long-term assets (t) to total assets (t) ratio</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Net long-term assets (t) to total assets (t) ratio</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Accounts receivables (t)</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Long-term material assets (t) to total assets (t) ratio</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Short-term assets (t) to total assets (t) ratio</td>
<td>1</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Accounts receivables (t) to total assets (t) ratio</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>Accounts receivables (t) to total assets of previous year (t-1) ratio</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cash and cash equivalents (t) to total assets (t) ratio</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Inventory (t) to total assets (t) turnover</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Total assets (t)</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Change in short-term assets minus the change in cash and cash equivalents, change in short-term debt, depreciation, deferred assets, plus retained earnings compared to total assets (t)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author

Asset structure ratios compare particular asset elements to total assets. As with liquidity ratios, the basic presumption is that in cases of financial statement fraud particular positions of current assets are overvalued. The short term assets to total assets ratio was identified in five (5) of the previous studies ([4], [18], [22], [23], [24]) as the key indicator in the detection of financial statement fraud, while the inventory to total assets ratio was identified in four (4) of the previous studies ([22], [18], [14], [23]).

Table 6 - A summary of important and unimportant profitability ratios in detecting financial statement fraud

<table>
<thead>
<tr>
<th>Ratios:</th>
<th>Important</th>
<th>Unimportant</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability ratios</td>
<td>23</td>
<td>29</td>
<td>52</td>
</tr>
<tr>
<td>Profit before taxation (t)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Profit before taxation (t) to operating profit (t) ratio</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Gross margin ratio (t) = (sales – COGS)/sales</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>EBIT (t)</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
### Ratios:

<table>
<thead>
<tr>
<th>Ratios</th>
<th>Important</th>
<th>Unimportant</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profit after taxation (t)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Net profit margin (t)</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Current year profit after taxation (t) to previous year profit after taxation (t-1) ratio</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Profit before taxation (t) to EBIT (t) ratio</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Profit before taxation (t) to sales (t) ratio</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Profit before taxation (t) to total assets (t) ratio</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Current year profit before taxation (t) to previous year profit before taxation (t-1) ratio</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Profit after taxation (t) to profit before taxation (t) ratio</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Profit after taxation (t) to long-term assets (t) ratio</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Profit tax (t) to sales (t) ratio</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Operating costs (t) to sales (t) ratio</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Return on long-term debt and capital and reserves</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Interest costs (t) to operating costs (t) ratio</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ROA (t)</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>ROCE (t)</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Increase of operating profit</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Operating profit (t) to sales (t) ratio</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

**Source:** Author

**Profitability ratios** compare profit (before or after taxation) with particular positions on the balance sheet or profit and loss account. Since the aim of financial statement fraud is to achieve a positive result (i.e. show a profit), which, without manipulation, would probably have been negative (i.e. shown a loss), the previous research suggests that this group of ratios is very important in the detection of fraud. In the studies that were analysed, no less than twenty-one (21) different ratios were identified as significant in detecting fraud. In eight (8) of the studies ([10], [12], [9], [18], [14], [15], [21], [25]) the key indicator in this group was shown to be ROA (return on assets)\(^2\),\(^3\), while net profit margin was identified as another key indicator in five (5) of the studies ([10], [14], [18], [22], [23]).

---

\(^2\) Return on assets = net profit for the current period/total assets

\(^3\) In addition to net return on assets, which compares net profit for the current reporting period with total assets, the studies that were analysed suggest that gross return on assets (which compares profit before tax in a particular reporting period with total assets) is also a significant indicator in the detection of financial fraud. Since the difference between these two ratios is only in relation to the current profit tax, studies which suggest either of these two as important indicators were encompassed here.
Table 7 - A summary of important and unimportant cash flow ratios in detecting financial statement fraud

<table>
<thead>
<tr>
<th>Ratios:</th>
<th>Important</th>
<th>Unimportant</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash flow ratios</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating cash flow (t) minus net cash flow (t), profit distribution (t) and capital expenditures (t)</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>Operating cash flow (t-1)</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Operating cash flow (t)</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Operating cash flow (t) to short-term debt (t)</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Increase of operating cash flow</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Operating profit minus operating cash flow (t) to total assets ratio</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Operating profit minus WACC for previous 3 years to short-term assets (t-1)</td>
<td>1</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

Source: Author

Cash flow ratios compare cash flow, primarily operating cash flow, with particular positions on the balance sheet. Since cash flow ratios were included in only three of the fourteen (14) studies analysed and were considered significant in the detection of financial statement fraud in only two, it can be concluded that these ratios haven’t been shown to be that significant in the detection of financial statement fraud.

Table 8 - A summary of other important and unimportant ratios in the detection of financial statement fraud

<table>
<thead>
<tr>
<th>Ratios</th>
<th>Unimportant</th>
<th>Important</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Other ratios</td>
<td></td>
<td></td>
<td>34</td>
</tr>
<tr>
<td>Altman Z Score Model</td>
<td></td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Number of audit committee members</td>
<td></td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Number of Management board members</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Number of Management board members that have left company 2 years prior to fraud</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Has there been a change of auditors during the last 2 years prior to fraud?</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Was the audit done by a Big 4 company?</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Was the audit opinion unqualified?</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Does the audit committee have a person with financial expertise?</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Does the company have internal audits?</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Have there been any court proceedings?</td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Is the CEO also president of the supervisory board?</td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
### Ratios

<table>
<thead>
<tr>
<th>Ratios</th>
<th>Unimportant</th>
<th>Important</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Logarithm of book value of assets as of the end of the financial year (t)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Market value of the company (t) to book value of the debt (t) ratio</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Retained earnings to total profit (t) ratio</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Percentage of members of audit committee that are independent</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Percentage of shares owned by management and supervisory board members</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Percentage of shares owned by management board members</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales abroad to total sales (t) ratio</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Percentage of supervisory board members outside the company</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Percentage of substantial shareholders in total ownership structure</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Size of the company (t)</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Total percentage of shares owned by third parties</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Number of supervisory board members outside the company</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Percentage of pledged shares owned by management and supervisory board members</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Source: Author

Other ratios are based on various forms of non-financial information, however, in the studies analysed, only the Altman Z score model has been shown to be an important indicator in the detection of financial statement fraud.

### 3. CONCLUSION

Research carried out by the ACFE suggests that financial statement fraud is a type of fraud that causes the greatest losses for businesses. As a result of the relatively large number of cases of financial statement fraud in the past 15 years (Enron, WorldCom, Parmalat...), there has been an increased interest by the public and the academic community in ensuring that financial statement fraud is detected early in the current business environment. The aim of this paper was to analyse previous research on the application of data mining methods in the detection of financial statement fraud, focusing on financial analysis indicators that can detect fraud in financial statements.

It can be concluded that of the 110 financial and non-financial ratios analysed in the previous research, only eight (8) financial analysis indicators can successfully be used to detect financial statement fraud, as can be seen in the following table:
Table 9 - A summary of key financial analysis indicators for detecting financial statement fraud

<table>
<thead>
<tr>
<th>Ratios:</th>
<th>Financial analysis indicators:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity ratios</td>
<td>Inventory to sales ratio</td>
</tr>
<tr>
<td></td>
<td>Sales to total assets ratio</td>
</tr>
<tr>
<td></td>
<td>Accounts receivables to sales ratio</td>
</tr>
<tr>
<td>Liquidity ratios</td>
<td>Working capital to total assets ratio</td>
</tr>
<tr>
<td>Solvency ratios</td>
<td>Total debt to total assets ratio</td>
</tr>
<tr>
<td>Profitability ratios</td>
<td>ROA (Profit after taxation / total assets)</td>
</tr>
<tr>
<td></td>
<td>Net profit margin (Profit after taxation / sales)</td>
</tr>
<tr>
<td>Other ratios</td>
<td>Altman Z Score Model</td>
</tr>
</tbody>
</table>

Source: Author

Since the previous research pertains to different geographic regions, and different time periods, this review suggests that financial statement fraud can be detected early by focusing on only eight financial analysis indicators.

4. REFERENCES


SAŽETAK RADA

Lažiranje financijskih izvještaja predstavlja oblik prijevare koja polučuje najveće gubitke za poslovne subjekte. Današnje poslovno okruženje osigurava da se primjenom metoda rudarenja podacima (eng. data mining methods) detektiraju lažiranja financijskih izvještaja, što je ujedno i dovelo do većeg broja istraživanja posljednjih 15-tak godina. Kao prvi korak u uspješnoj implementaciji sustava detekcije primjenom metoda rudarenja podacima, pokazatelji financijske analize snažni su indikator pri otkrivanju lažiranja financijskih izvještaja. Analizom četrnaest (14) prethodno objavljenih radova detektirano je 110 financijskih i nefinancijskih pokazatelja, od čega je osam (8) pokazatelja financijske analize moguće izdvojiti kao najvažnije u formiranju mode-la detekcija lažiranja financijskih izvještaja, primjenom metoda rudarenja podacima.

Ključne riječi: lažiranje financijskih izvještaja; otkrivanje prijevara u financijskim izvještajima; pokazatelji financijske analize
Towards a Framework for Achieving Clean Audit Outcomes in the South African Public Sector

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ABSTRACT

Achievement of clean audit outcomes in every entity of the South African public sector would be something worth celebrating. However, very few public sector institutions have achieved clean audit outcomes, according to the audit evaluations and analyses published at the end of their financial reporting cycles. In addition, many public sector institutions are experiencing challenges in their leadership, financial management and governance functions. In response to this, South Africa’s Supreme Audit Institution, the Auditor General, South Africa (AGSA) put plans in place to help these public sector institutions to achieve clean audit outcomes. Since there is limited published research in respect of public sector auditing, this paper addresses the sector’s ongoing failure to achieve clean audits by drawing on insights from the broader body of literature on leadership, financial management and governance, and from this to produce a generic framework within which clean audit outcomes can be achieved in the public sector. The method was based on a panel data regression analysis,
which provided results that were used in conjunction with the literature to draw the proposed framework. The proposed framework shows how the combination of positive and effective leadership, financial management and governance could manifest as genuine accountability. This paper also finds that the audit committee aspect of governance has an important role to play in guiding the entity to achieve the desired clean audit outcome. This is achieved through maintaining the function’s independence, demonstrating their financial literacy, experience, and commitment, and by their commitment to regular meetings. Based on these findings, the paper recommends a generic framework which could expedite the achievement of clean audit outcomes in the public sector institutions. In addition, the paper concludes that the effectiveness of the audit committee is key to the proposed framework’s ability to guide public sector entities to achieve clean audit outcomes.

**Key words:** clean audit outcomes; audit committee; framework; governance; leadership; public sector

### 1. INTRODUCTION

Every journey begins with a dream, and for the South African public sector the dream was (and remains) the achievement of clean audits. The term ‘clean audit’ formally entered the auditing lexicon in the Republic of South Africa in 2009, and is the pivotal concept intended to promote accountability in the country’s public sector organisations. Key to the achievement of clean audits in the South African public sector is the escalation of awareness of the concept amongst its employees (COGTA, 2009). The term ‘clean audit’ has generally replaced the more cumbersome term ‘unqualified audit opinion’, which was the best quality audit outcome achievable and based only on the audit of financial statements. (Legislation has now made reporting on certain non-financial aspects of entities’ performance mandatory, and these reports are accommodated in the updated ‘clean audit’ term.) However, the essential change the term ‘clean audit’ has introduced is this: whereas the previously preferred ‘unqualified audit opinion’ could still contain an auditor’s clause identifying ‘some material errors’, the new ‘clean audit’ variation has the expectation that there will be no clauses identifying any material error. Thus, an unqualified audit opinion that contains no clause identifying any material error is now referred to as a ‘clean audit opinion’ by the Auditor General of South Africa (AGSA); and in 2009 the AGSA began the journey that was supposed to end in 2014 with the universal achievement of clean audits throughout the South African public sector. However, this noble ambition has continued to prove elusive (Powell, et al., 2014). The now necessary next phase of the journey to achieving clean audits requires the pragmatic and systematic enforcement of compliance with the principles guiding the preparation of financial statements, and with the country’s laws and regulations. In addition, the process requires the
rigorous scrutiny and audit of the efforts of the public sector entities to achieve nationally predetermined development objectives by the AGSA.

This paper therefore, proposes a generic framework that is intended to expedite the achievement of clean audit outcomes in the country’s public sector institutions. Thus, the rest of the paper is structured as follows: the next section discusses relevant literature; this is followed by a discussion of the research methodology, and by the proposed generic guidance framework. The last, concluding section also includes appropriate recommendations.

2. LITERATURE REVIEW

The key feature of the framework for achieving clean audit outcomes is its dependence on the implementation of good internal control. The AGSA has identified three drivers that are essential prerequisites for effective internal control; the audits of the public sector institutions are thus now focused on determining the strengths of these three drivers (AGSA, 2013). The key internal control drivers are leadership, financial management and governance (AGSA, 2013).

2.1. LEADERSHIP, FINANCIAL MANAGEMENT AND GOVERNANCE

Missioura (2015) agrees that leadership has a critical role to play in monitoring the internal controls environment, and to ensure that it contributes to the implementation of effective and efficient management systems.

Similarly, Simons (2013) regards leadership to be the lever of control that drives the organisation’s strategic direction and ensures proper processes in policy formulation and implementation. In addition, Ho, et al., (2015), in their study of the relationships between the Chief Executive Officer, and gender, ethical leadership, and accounting conservatism, revealed a positive association, and suggest that ethical leadership should contribute to the greater integrity of financial internal control reporting. Leadership is at the top of management’s decision-making pyramid (Ho, et al., 2015), and weak leadership may therefore result in poor decisions that negatively affect the audit outcome (Skaife, et al. 2013). McKinney (2015) views effective financial management in the public sector and non-profit organisations as an important correlative of timely reporting and the quality of audit outcomes. Of course, financial managers also have a primary responsibility to prepare financial statements for audit. Effective governance optimises the use of resources to ensure proper internal control systems (Cao, et al., 2015; Lisic, et al., 2015). In addition, Lisic, et al., (2015) emphasise that the audit committee has the power to ensure that internal controls are effective and support the financial reporting processes. Hence, the whole governance structure has as its prime focus the optimisation of internal controls and the improvement of the quality of audit reports (Cao, et al., 2015; Lisic, et al., 2015).
Previous research such as Motubatse (2016) indicated that governance was the dominant contributor to the achievement of clean audits; it went further to highlight that the effectiveness of governance is propelled by five key factors, which are independence, financial literacy, experience, commitment and meeting regularly (KPMG, 2009; Ahmed, 2016; Iyer, et al., 2013). Hence in addition to discussing the AGSA’s three major variables of clean audit, the subsequent sections of the literature will highlight further on these five key factors of governance as a contribution and expansion on existing variables of clean audit as illustrated in this paper’s contributory framework in Figure 1.

2.2. INDEPENDENCE

Their independence allows the audit committee to challenge management decisions freely and objectively (KPMG, 2009). According to Al-Matari et al., (2014), the independence of the audit committee contributes positively to the entity’s achievement of good governance, confirming that the audit committee is a potentially key contributor to the achievement of clean audits in the local government environment (IOD, 2009). In addition, various researchers have emphasised that the effectiveness of the audit committee is also linked to its independence (Zaman & Sarens, 2013; De Vlaminck & Sarens, 2015; Al-Matari, et al., 2014; KPMG, 2009).

IFAC and CIPFA (2014) identify the audit committee as another source of assurance with respect to governance, and that its independence is important to enhancing effective governance (Rupley, et al., 2011; Boyle, et al., 2015; DeZoort, 1998; De Vlaminck & Sarens, 2015).

The external auditors, on the other hand, are expected to demonstrate their independence from all operational governance structures in order to enhance audit quality. But, while Jamal and Sunder (2011) associate the auditor’s independence with audit quality, Daniels and Bookers (2011) feel that the auditor’s independence may not of itself enhance audit quality. Either way, independence requires the auditor to comply with the principle that an auditor should not assume management’s responsibilities in any business or operational capacity, nor should it perform an audit engagement in any areas in which he or she has a direct involvement or has had a recent direct involvement, and should also resist being influenced by the client while in the service of the client. Thus, when the auditor’s independence is maintained, this is an important contribution to maintaining audit quality (Soltani, 2007).

2.3. FINANCIAL LITERACY

It is demonstrated by specific employment experience, and by certification in finance, accounting and/or other related services (Iyer, et al., 2013; KPMG, 2009).
The financial literacy of the audit committee members is a prerequisite component of competence (IFAC, 2003; Iyer, et al., 2013). In fact, the most important part of the audit committee's competence is in its financial expertise (Abernathy, et al., 2015). Thus, the audit committee's demonstrable financial expertise enhances audit quality (Deis & Giroux, 1996).

Membership of the audit committee (as it is a key part of governance), demands a higher level of competence and financial literacy than is required in most other aspects of the business, in order to understand the problems encountered in financial reporting, and to identify the risks of and associated with misstatements and other accounting errors (Oktorina & Werdari, 2015). The financial literacy of the audit committee members can be measured in terms of their academic studies, their on-the-job training, work experience and professional education.

In his study of the audit committee members’ characteristics, Aryan (2015) shows that there is no significant relationship between the fact of being an audit committee member and their individual (or collective) financial literacy. However, Abernathy, et al., (2015) investigated the association between the audit committee members’ accounting expertise and timeliness of financial reporting, and the results show there to be a positive relationship with financial literacy. These results further suggest that the audit committee's effectiveness may be improved by appointing members who have formal financial or accounting training and experience (Abernathy, et al., 2015).

2.4. EXPERIENCE

Audit committee effectiveness is measured by their collective experience (Iyer, et al., 2013). Such preferred experience includes knowledge of the industry’s operations, accounting knowledge, and management principles (Hoitash, et al., 2013). An understanding of business risk, controls and applicable accounting policies are also deemed important (KPMG, 2009).

Despite the fact that financial literacy has been identified as an essential skill of an effective audit committee member, it does not necessarily mean every member of the committee must have accounting and finance skill. Other skills such as law, risk management, information technology and other technical fields are also pertinent contributors to the creation of an effective audit committee (IOD, 2009; KPMG, 2009). Utilising their collective competence in these various disciplines, the audit committee is expected to facilitate efficient and effective cooperation in governance (Alabede, 2012; Nyman, et al., 2005).

An audit committee with appropriate experience is likely to enjoy enhanced efficiency and thus also be able to resolve any conflicts that may arise between
management and auditors (Abernathy, et al., 2015). Interestingly, Iyer, et al., (2013) used a regression model to examine the characteristics of the financial expertise and qualifications of the audit committee members, and the results show that the audit committee's experience is positively regarded by the rest of the governance providers. Albring, et al., (2013) came to similar conclusions, also suggesting that the experience of the audit committee does impact on their ability to contribute to effective governance.

Various publications reviewed for this research use the term ‘competency’ in place of ‘experience’, for various reasons (Siriwardane, et al., 2014; Glover & Prawitt, 2014; Leung, et al., 2009). These terms can also be understood as synonymous with skill (Arens, et al., 2014), knowledge (Leung, et al., 2009) and the ability to perform certain tasks (Siriwardane, et al., 2014; Glover & Prawitt, 2014). In South Africa, competence is the term used almost exclusively with reference to hiring, training, qualifications, skills and any other form of evaluation and assessment. According to IFAC (2006): “competence refers to the demonstrated ability to perform relevant roles or tasks to the required standards, whereas capability refers to the attributes held by individuals that give them the potential to perform. Competence refers to the actual demonstration of performance. Competence may be assessed by a variety of means, including workplace performance, workplace simulations, written and oral tests of various types and self-assessments.”

Siriwardane, et al., (2014), in their study of skills, knowledge and attributes, reveal that the demonstration of professional competencies is an important component of audit quality, whereas Glover and Prawitt (2014) conclude that competency enhances audit quality through professional identity, communication and practices. In order to maintain audit quality, and extrapolating from the above descriptions of competence, Glover and Prawitt (2014) simply remind auditors to adhere to professional standards. Thus, the auditors should apply their proficiency throughout the audit, and the auditor’s competence is then evidenced in the quality of the audit (Favere-Marchesi, 2000). Leung, et al., (2009) also argue that competence is a characteristic of a professional person, and therefore, when the auditor faces pressure from management or a time constraint, the audit quality should nevertheless not be compromised. Despite the term competency having been used in various ways and forms, this study argues that there is an overarching view of competency among the auditors as a descriptor for their technical experiences and ethical behaviour, and the professional qualities they are expected to uphold at all costs.

2.5. COMMITMENT

Commitment is one of the fundamental qualities present in an effective audit committee. According to Ahmed (2016:1), commitment has a significant effect
on the efficiency and the success of individual teams of workers and on the organisation as a whole. Thus, the audit committee’s commitment is reflected in its effectiveness (Ika & Ghazali, 2012). Similarly, effectiveness is a significant outcome associated with commitment in an employment position, a profession, and with overall career success (Ahmed, 2016:2). According to Martinov-Bennie, et al., (2015), the effective functioning of the audit committee requires commitment and competent performance evaluations. Usually such evaluations are expected to be done by the senior management, internal auditors and external auditors (Martinov-Bennie, et al. 2015; National Treasury, 2009). Such a performance evaluation should be done timeously and objectively in order to enhance the commitment and effectiveness of the audit committee.

The degree of active involvement of the audit committee in the activities of auditors and other governance aspects show the commitment of the audit committee. Morgan (2010) states that the performance of the duties and functions of the audit committee requires commitment of time and effort in order to execute their responsibilities effectively. The use of an audit committee charter is another formal, mandatory compliance-driven measure of conformance which demonstrates the commitment and effectiveness of the audit committee (National Treasury, 2009; Ika & Ghazali, 2012). Thus, improving the level of commitment of the individual members is an important way to enhance the effective functioning of the audit committee.

2.6. REGULAR MEETING

Regular attendance at meetings (as is usually required in an audit committee charter) indicates a focused and efficient audit committee (KPMG, 2009). Regular meetings of the audit committee is another form of accountability, and is supportive of good governance and of stakeholders’ interests. The number and quality of audit committee meetings is associated with effective time management and with audit committee effectiveness (Ika & Ghazali, 2012). Hence, in academic research in particular, the effectiveness of an audit committee is often measured in terms of the number of meetings they attend with management, internal auditors, external auditors and other assurance providers. Another measure of the effectiveness of the audit committee in governance matters relates to the number of pertinent issues discussed, as opposed to the routine-type agenda items that form the backbone of their regular meetings (Jan, 2015). Again, the content and quality of discussions at audit committee meetings are indicators of the effectiveness and accountability of the committee, and from which compliance with the audit committee charter is deducible. It should be noted that both the Public Finance Management Act and the Municipal Finance Management Act clearly stipulate that the effectiveness of audit committees should be measured against their charters (National Treasury, 2009).
Meeting regularly enables the audit committee to stay on top of the issues that are affecting (or are likely to affect) governance and audit quality, and to address audit-related issues. Aryan (2015) ran a multiple regression analysis on the characteristics of the audit committee and the results show the existence of a positive relationship between the frequency of audit committee meetings and the entity’s size and profitability. These results are also confirmed by Li, et al., (2012) who found that the extent of the agendas and the frequency of meetings are positively associated with an effective audit committee.

3. RESEARCH METHODOLOGY

This paper was based on the results of the author’s Doctoral thesis in which he aimed to evaluate the factors affecting/inhibiting the achievement of clean audit outcomes in South Africa’s municipalities. In the thesis, a quantitative approach was used to examine whether there was a specific or direct relationship between clean audit outcomes and the aspects of leadership, financial management and governance. By analyzing the quantitative data, it was possible to identify the effect (contribution) of each factor in achieving a clean audit outcome. The research design was derived from insights gained during the literature review process, which have already been discussed in the previous sections of the paper.

The proposed framework in this paper was derived from a statistical analysis of factors, which are seen by the Auditor General as key drivers of clean audit. Data for these variables used were as reported by Motubatse (2016), which were data from the nine provinces of South Africa and which were arranged in panel data fashion. The panel data were then subjected to multiple regression analysis with summarised results in Table 1. Analysis was conducted at an alpha level of 0.05, such that if the P value is less than or equal to 0.05, the relationship is seen as significant.

The following regression models were used:

Model 1 (Table 1, test 1) – Factors affecting clean audit:

\[
Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + e 
\] ................................. (1)

Where:

\(Y\) = clean audit attained
\(\beta_0\) = \(Y\) intercept
\(\beta_{1-3}\) = coefficients of regression
\(X_1\) = leadership
\(X_2\) = financial management
\(X_3\) = Governance
\(e\) = error = 0
Model 2 (Table 2, test 2) – Factors affecting governance:

\[ Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e \] ................................................................. (2)

Where:

\[ Y = \text{Governance} \]

\[ \beta_0 = Y \text{ intercept} \]

\[ \beta_{1-3} = \text{coefficients of regression} \]

\[ X_1 = \text{Risk management} \]

\[ X_2 = \text{Audit committee} \]

\[ X_3 = \text{Internal audit} \]

\[ e = \text{error} = 0 \]

4. RESULTS AND DISCUSSION

Table 1  Regression Result of Factors Affecting Clean Audit

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>const</td>
<td>-0.003</td>
<td>0.47</td>
</tr>
<tr>
<td>Led</td>
<td>-0.087</td>
<td>0.51</td>
</tr>
<tr>
<td>FinMgt</td>
<td>0.183</td>
<td>0.16</td>
</tr>
<tr>
<td>Gov</td>
<td>0.190</td>
<td>0.01**</td>
</tr>
</tbody>
</table>

Table 2  Regression Result of Factors Affecting Governance

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Const</td>
<td>0.129933</td>
<td>&lt;0.001***</td>
</tr>
<tr>
<td>Int_Audit</td>
<td>0.106544</td>
<td>0.413</td>
</tr>
<tr>
<td>AuditCom</td>
<td>0.378701</td>
<td>0.002**</td>
</tr>
<tr>
<td>RiskMgt</td>
<td>0.0755811</td>
<td>0.480</td>
</tr>
</tbody>
</table>

As can be seen in Table 1, out of the three variables for clean audit, governance proved to have a significant relationship with clean audit at a P-value of 0.01. Albeit the strength of governance on clean audit, it cannot function alone without the other variables (leadership and financial management). Given this strong link between governance and clean audit, the paper proceeded to ascer-
tain what factors are linked to strong governance. Table 2 shows that audit committee effectiveness is significantly related to good governance. However, audit committee cannot function alone in the absence of the other two variables (risk management and internal audit). Based on this unique results in Table 1 and Table 2, the paper suggests that clean audit outcome might be affected by many variables, hence the paper proceeds to propose a framework for achieving clean audit outcome in the public sector (Figure 1).

The framework developed in the present paper provides a clear indication that the quality (and presence of) governance structures plays an important role in the achievement of clean audit outcomes in South Africa’s public sector institutions. Thus, the proposed framework is consistent with the AGSA’s key drivers of internal control.

Limitations

As in many other research, it is worthwhile to mention the limitations in the method and results of this paper, which includes inter alia, time period and untested variables. The time period within which the variables were considered was limited to five years, this presents a gap for future researchers to fill and thus limits generalisation of this results. Future research should expand the number of years for these variables. Furthermore, the variables such as internal audit, audit committee and risk management were only tested against governance, future researchers might consider combining these variable to jointly test their effect on clean audit as indicated in the framework in Figure 1.

4.1. PROPOSED FRAMEWORK FOR ACHIEVING CLEAN AUDIT OUTCOMES

Since the AGSA has stated that there are three variables that drive the country’s clean audit effort (leadership, financial management and governance), these drivers form the third node/cluster of management attributes in the proposed framework (see Figure 1 below.) And because the AGSA places so much reliance on these drivers as the vehicle to get the public service to clean audit status, examining their real-world effectiveness became irresistible, as did the urge to offer recommendations based on the outcome of this research. Recently published literature (Missioura, 2015; McKinney, 2015; Cao, et al., 2015; Lisic, et al., 2015) supports the Auditor General’s focus on the effectiveness of leadership, financial management and governance as key to improve audit outcomes. This research was therefore intended to discover the relative strengths of their individual influences.

Figure 1 summarises the proposed framework of attributes needed to achieve clean audit outcomes. This research resulted in the identification of three major
nodes or clusters of attributes needing to be optimised, and because the regression analysis of AGSA reports (Motubatse, 2016) indicated governance was the dominant contributor to the achievement of clean audits, the framework is strongly focused on governance. For example, examining the relative effectiveness of the factors affecting governance (as reflected in the framework below,) showed that internal audit, risk management and the presence of an audit committee jointly have an influence on governance effectiveness. Thus, the framework indicates that it is the audit committee that provides the major driving force within the governance cluster of disciplines that will propel public sector institutions towards clean audit outcomes. The effectiveness of the audit committee can thus be influenced by addressing the five (5) major aspects of the function, as illustrated on the right hand side of the framework below. These five aspects correlate with the factors identified in the literature as having an effect on the efficiency of the audit committee. The factors/aspects that an audit committee is required to demonstrate (see Figure 1) are independence, financial literacy, experience, commitment and meeting regularly. Published researchers including Cohen, et al., (2002), Morgan (2010), and Soliman and Ragab (2014) agree that it is the audit committee’s efficiency and effectiveness in demonstrating factors that enhances the overall efficiency of the audit committee. In response to this, it appeared appropriate to extend the Auditor General’s three-drivers-of-audit-outcomes framework to include these governance variables and thus to extend the framework to include the five audit committee variables. This extension adds new dimensions to understanding the influence of the governance function and thus introduces opportunities for further research. In audit practice the extended framework now suggests that audit scrutiny be extended to factors that affect audit committee effectiveness. In regard to research, these additional factors provide an agenda for further examination of the relative effects of the audit committee factors on the audit committee’s overall effectiveness. This proposed framework has not yet been published in any public sector auditing publication in South Africa, and hence the contribution of this research to auditing practice and on-going academic research has still to be recognised.
The literature review provided a broad overview of what is required to achieve clean audit outcomes; this has been combined with specific indicators that emerged from regression analysis of AGSA audit reports (Motubatse, 2016), to give a clearer explanation of how effective governance is affected. The result is a generic framework for achieving clean audit outcomes (see Figure 1 above.) The elements of the figure have been largely dealt with in the preceding discussion. However, the underlying rationale for the inclusion of internal audit and risk management in the framework has not been discussed separately as they are also effectively fundamental principles of governance, and thus the responsibility of audit committees in the public sector.

5. CONCLUSION

This paper aimed to provide a framework for achieving clean audit outcomes in the South African public sector. Thus, while the aim of achieving clean audit outcomes in the public sector is unquestioned, the governance aspects of public sector institutions are not sufficiently understood to be able to address their effectiveness issues. There has been limited progress made on this front as the processes are devoid of the conceptual background essential to construct the incremental efforts needed to achieve clean audit outcomes. Thus, with insights
from the literature, this paper has attempted to address this problem by providing an initial step to construct a generic framework for achieving clean audit outcomes. This proposed framework has distinguished leadership, financial management and governance. It should be noted that neither leadership nor financial management have a demonstrable effect on the achievement of clean audit outcomes, and in this sense, remedial efforts are unlikely to give the returns they would when applied to governance issues. On the other hand, the achievement of a clean audit outcome is linked to events and processes over which the audit committee has influence; therefore, the role of the audit committee is inextricably intertwined with the achievement of clean audit outcomes. Again, it is for this reason it has been suggested in the generic framework that the audit committee's independence, financial literacy, experience, commitment, and regular meeting are found to be representative of the specific contribution of the audit committee to the achievement of clean audit outcomes.

It is therefore logical for further research to extend this paper by applying the suggested framework as a basis for examining and analysing actual processes that have resulted in clean audit opinions in South Africa’s public sector institutions (2015/16 AGSA data suggests there were 49 out of 263 municipalities received clean audit outcomes, which will be examined in the next phase of this research). This will enable the generic framework to be tested and provide further insight into public sector auditing outcomes. The methodology used for the research that resulted in this generic framework was described in the author’s Doctoral thesis entitled “An evaluation of factors affecting the progression to clean audit outcomes in South African municipalities” (Motubatse, 2016).

In order to plan and execute effective public administration (at both the administrative and project-selection levels), effective monitoring and auditing policies are essential, as it is through these functions that the legislature is made aware of the manner in which these key functions are driving public service accountability. This research has revealed that of the three key public administrative service functions identified by the AGSA, governance is significantly more efficient and effective at achieving the desired improvements than are the other two. Within the governance function it is internal audit, the audit committee and the risk management functions that have greatest potential to overcome the challenges facing the orderly operation of public sector entities.
6. REFERENCES


ODREĐIVANJE OKVIRA ZA DOBIVANJE JASNIH REZULTATA REVIZIJE U JAVNOM SEKTORU JUŽNE AFRIKE

SAŽETAK RADA

Dobivanje jasnih rezultata revizije u svakom tijelu javnog sektora Južne Afrike bilo bi idealno. Međutim, mali broj institucija u javnom sektoru uspjelo su dobiti jasne rezultate revizije prema ocjenama i analizama koje su objavljene na kraju izvještajnog razdoblja. Osim toga, mnoge institucije u javnom sektoru suočene su sa izazovima u području vodstva, financijskog menadžmenta i upravljačkih funkcija. Kao odgovor na takvu situaciju, Vrhovna revizorska institucija Južne Afrike i Glavni državni revizor napravili su plan kako pomoći institucijama u javnom sektoru da dobiju jasne revizorske rezultate.

Budući da postoji malen broj istraživanja u području revizije u javnom sektoru, ovaj rad se bavi pogreškama prilikom dobivanja jasnih revizorskih rezultata i upućuje na literaturu o vodstvu, financijskom menadžmentu i upravljanju, te iz toga stvara generički okvir unutar kojeg bi se mogli dobiti jasni rezultati revizije u javnom sektoru. Predloženi okvir pokazuje kako kombinacija pozitivnog i učinkovitog vodstva, financijskog menadžmenta i upravljanja može rezultirati pouzdanim rezultatima.

Ovaj rad također naglašava važnu ulogu revizorske komisije koja bi trebala voditi tijelo do željenih jasnih rezultata revizije. To se postiže održavanjem nezavisnosti funkcija, prikazom njihove financijske pismenosti, iskustvom, predanošću i održavanjem redovitih sastanaka. Obzirom na dobivene rezultate članak preporučuje generički okvir koji bi ubrzao dobivanje jasnih revizorskih rezultata u institucijama javnog sektora. Na kraju se zaključuje da je učinkovitost revizorske komisije ključni čimbenik vođenja institucija javnog sektora kako bi se dobili jasni rezultati revizije.

Ključne riječi: jasni rezultati revizije; revizorska komisija; okvir; upravljanje; vodstvo; javni sektor
RELATIONSHIP BETWEEN HUMAN CAPITAL INVESTMENTS AND FIRM’S NET PROFIT

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ABSTRACT

This paper examined whether human capital investment (HCI) does contribute to the profit performance of selected companies in the FTSE/JSE Responsible Investment Index Series. Secondary data on companies’ profit, human capital investment (HCI) (main independent variable) and sales turnover (STO) (control variable), were collected from the integrated reports of 28 companies for six years 2010 – 2015. Using a panel data approach and the regression statistics, findings from the analysis present two important findings. Firstly, the P value on the influence of two independent variables (HCI and STO) indicate a significant relationship at P = 0.0001. Secondly, the HCI, acting alone, shows a negative but not significant relationship with net profit. However, this relationship is temporary; at long run, HCI has the propensity to positively impact better performance of net profit, hence companies should not evaluate the HCI profit performance based purely on a short term. The benefit would take a little while to mature. The paper recommends further research to cover wider pool of companies at longer term.

Key words: human capital investment; net profit; financial performance
1. INTRODUCTION

This research evaluated the effect of human capital investment on firm's profitability. The paper is pertinent as businesses are battling with unprecedented competition regardless of industry type and size (Hall, 2015). One of the catalysts to navigate high competitive business environment is investment in human capital to equip business with the spot-on human resource capacity to improve strategic, financial and non-financial performance.

Human capital is an amalgam of competences implicit in knowledge, skills and personality attributes required to create economic value (Bendig, 2017). Investing in human capital is a part of corporate strategy, which capacitates employees with theoretical and practical skills through training with potential end product of increased performance (Kwon et al, 2013). Some companies are still hesitant and/or apathetic to invest in human capital with a seemingly skewed notion that such consumes firm's profit. However, the long-term benefit of investing in human capital surpasses the short-term costs; such benefits include increased sustainability attributes and financial value. The objective of this paper therefore, is to demonstrate empirically whether a relationship exists between human capital investment and corporate net profit.

The rest of this paper is organised as follows, the next section discusses the theoretical background of the paper. Following the theory, the paper presents a brief review of related literature. The method and results section follows the literature review; the last section presents the conclusion.

2. THEORETICAL FRAMEWORK: THE HUMAN CAPITAL THEORY

This research is supported by Human capital theory. The importance of human capital is largely the motivation behind governments' educational funding around the world (Taylor, 2017). Majority of human capital investment is anchored on educational and/or skills training. This involves both investment and, knowledge an financial gains (Papay et al 2016; Bryant et al 2016). Human capital theory is used to describe the condition of employee's production, it was presumed that labour production correspond with the human capital development needs that was suitable for tasks (Hall, 2015). Human capital theory relate with human capital investment through training, and the responsibility of employee knowledge and skills, performance, and economic growth (Mestieri et al, 2017). Thus human capital theory is a popular educational theory that is being used globally in understanding aspects of labours' skill and productivity. Therefore, training and education should be considered as an investment that provide gain to employees, companies and governments at large. Although human capital theory has attracted criticism (Tan, 2014), but its rel-
evance has been felt in businesses around the world. Thus the relevance of human capital theory to this research is that human capital theory presume that training catalyses the performance of workers and that this controls the value returns that the company might receive. Hence since the 1960s human capital theory has been applied to the social and human behaviour policies connected to labour management and training (Marginson, 2017). This paper is thus anchored on human capital theory because it emphasizes productivity and efficiency implicit in workers’ skill development (Bryant et al 2016). From the foregoing, this paper tried to examine if human capital expenditure has a relationship with the corporate net profit.

3. LITERATURE REVIEW

Shaw et al (2013), conducted a study that evaluate the human capital losses and organisation’s performance. The research reveal that investing more on human resource management leads to losses of human capital, because employees become more literate and looks for better organisations that will suit the skills they acquired. The study further predicts that, because employees tend to leave the company, the voluntary turnover rates strongly affect the company’s financial performance and productivity negatively.

In another study, Bapna (2013), evaluated the relationship between the human capital investments through employees training and employee performance in an organisation. Whilst the paper noted improvement in workers’ skill, it also noted that not all employee training add value to employees’ performance. Overall findings from Bapna (2013) reveal that human capital investment through training improves employees’ performance and contributes positively to economic growth. In a closely related research, Vomberg (2015), examined the contribution of human capital and trademark to company performance. The findings provide a proof that there is a significant connection between the two variables.

Another empirical research focussed on workers’ development, team building and company production value in small and medium firms in Portugal. Using the structural model approach, it analysed data from hundred and ninety nine organisations of three to fifteen years in operation, and from five different business industries. The results revealed that the ability and behaviour of managers affect the production of emerging organisations Storey et al (2014).

Sung et al (2014) examined the influence of human capital investment and company’s transformation. The study investigated the impact of human capital investment on company’s innovations. The researcher used a time – lagged ap-
approach and the data was collected from 260 Korean companies in all the sectors of activities. The results indicate that training expenses enhance learning environment that improve the company’s transformation. The results further indicate strong connection between company internal training and transformation and on the other hand, it also indicates that training outside company does not have impact on company innovative performance.

It has also been argued that dimensions of human resource development could determine the effectiveness derivable. For instance, Sung et al (2014), examined the effect of different types of human resource development on company performance. The researcher used both qualitative and quantitative approaches for both management and employee perspectives. The result indicate that employee development increases labour efficiency and productivity which increase financial strength of the company. The findings of this study is that there is a positive link between human resource development and company performance regarding labour.

Another study conducted by Jegede et al (2016), on the influence of human capital, transformation and company value aimed to determine the link between human capital, transformation and company value in the Nigeria mining sector. The researcher used non-probability, purposive sampling and collected data from 150 mining companies which received 70.6% rate feedback. It was noted from the study that all types of human capital are crucial for measuring the labour efficiency in the mining companies. The result in this study shows the strong relationship between employee’s transformation and mining performance.

Pivac et al (2017) examined the linkage between human capital and company profit, controlled by profit margin ratios. The paper studied 5000 companies listed in the European Union from the Information Technology sector. Applying a five years panel approach, the results revealed that companies that spend more money in human capital investments make more profit. It also found that companies’ prioritisation of employees’ skill development depends amongst others, on size of company.

Researchers are also rummaging the assertions that human asset management activities might have some effect on the success of the company. A current research that stands out in this unique question is Vidija et al (2016), who examined the effect of human assets management activities on company’s growth. Both qualitative and quantitative data on human resource management practices and company’s performance were collected from integrated report archives of sixty listed firms in the Nairobi Security Exchange (NSE). Applying a cross-sectional survey data and multiple regression statistics, findings indicate a likelihood that companies, that excel in human resource manage-
ment practice will have higher propensity to experience better productivity, enhanced profit, a boost in sales turnover and increase in capital attraction (Vadiji et al, 2016).

Wenzel (2017), performed a research aimed at revealing the effect of worker’s development in a companies of social industry. The researcher used non-probability, purposive sampling and used qualitative data by means of open ended questionnaires. The findings of this study encouraged companies in social sector organisation to advance their knowledge in terms of human capital development in order to avoid more challenges that the SSO are facing.

Backman et al (2016), analysed the impact of employee development on corporate sustainability in Sweden. Findings from the research showed that employees are human assets and their value is determined by the level of education acquired and work related experience. The study finds that human asset influences the company’s performance. Therefore, the study concluded that the growth and survival of the company is controlled by how human assets is dignified; see also Backman (2014), who confirm the productivity enhancement that comes with improvements in employee development.

4. RESEARCH METHODOLOGY

This paper made use of secondary data, which were collected from the sampled companies’ annual financial statements. Furthermore, the paper adopted a quantitative research approach as the research paradigm is positivist – which involves measurement of the relationship between variables. In order to measure the relationship between these variables, a quantitative approach which employs statistical analysis was deemed suitable.

The population of this study comprised the companies listed in FTSE / JSE Responsible Investment Index Series. The researchers studied 28 companies for 6 years, which constitutes a panel data of 168 observations. These companies were purposively chosen based on consistent availability of human capital expenditure data over the six years of study. The human capital expenditure was the reported monetary expenses spent on human capital development in the annual reports of companies. The regression statistics was applied to analyse the panel data; in addition to the main independent variable, the researchers added a control variable, which is sales turnover, hence the two independent variables in the regression model appears below.

\[
\text{Regression Model: } \gamma = \beta_0 + \beta_1X_1 + \beta_2X_2 + \varepsilon
\]

\[
\gamma = \text{Net Profit}
\]

\[
\beta_0 = \gamma \text{ intercept}
\]
\[ \beta_{1-3} = \text{Regression coefficients} \]
\[ \chi_1 = \text{Human Capital Investment (HCI)} \]
\[ \chi_2 = \text{Sales Turnover (STO) (control variable)} \]
\[ e = \text{error (represents effect of other omitted independent variables)} \]

4.1. RESULTS AND INTERPRETATION

Table 1  Statistical results and Findings

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<tr>
<th>Regression Statistics</th>
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<tbody>
<tr>
<td>Multiple R</td>
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<tr>
<td>R Square</td>
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<tr>
<td>Adjusted R Square</td>
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<td>Standard Error</td>
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<td>Observations</td>
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<th>ANOVA</th>
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<tr>
<td>df</td>
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<td>Regression</td>
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<tr>
<td>Total</td>
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<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Standard Error</th>
<th>t Stat</th>
<th>P-value</th>
<th>Lower 95%</th>
<th>Upper 95%</th>
<th>Lower 95.0%</th>
<th>Upper 95.0%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>40644.22</td>
<td>20729.69</td>
<td>1.960677</td>
<td>0.0516</td>
<td>-285.421</td>
<td>81573.86</td>
<td>81573.86</td>
</tr>
<tr>
<td>STO</td>
<td>0.019482</td>
<td>0.003479</td>
<td>5.599284</td>
<td>8.81E-08</td>
<td>0.012612</td>
<td>0.026352</td>
<td>0.012612</td>
</tr>
<tr>
<td>HCI</td>
<td>-54.439</td>
<td>79.84734</td>
<td>-0.68179</td>
<td>0.496329</td>
<td>-212.093</td>
<td>103.2153</td>
<td>103.2153</td>
</tr>
</tbody>
</table>

Overall regression significance shows that P value is 0.001 which is less than 0.05. Therefore, the finding thus indicates a significant a relationship between a combination of human capital expenditure, sales turnover and net profit. However, when we examine the performance of independent variables individually, \( \chi_1 \) (human capital investment: HCI) show a P value of 0.49 which is more than 0.05, showing a weak relationship for HCI. The second independent variable, sales turnover, indicate a P value of 0.0001, which is a high significance level. The implication therefore is that human capital investment must be accompanied by a high sales turnover to yield a positive impact on net profit. This finding also reveal a negative regression coefficient of -54.43, showing
that R1 invested in HCI decreases net profit by R54 within the short term. Overall, the results show that within a short time span of 6 years, HCI may cause a reduction in net profit. This corroborates previous literature, which shows that at long run (about 13 years), companies that invest in HC would experience profitability (Blundell et al, 1999).

5. CONCLUSION

The findings in this paper indicate that within the short-term HCI may decrease profitability in companies. This decrease may be short-lived; Companies should not be discouraged by brief short-term decrease in profit arising from HCI. At long term companies that invest in HC would experience profitability (within a range of 10 – 13 years) (Blundell et al, 1999). Findings of this study is limited by time and number of companies used. It is likely that results may change from negative to positive with a longer period of data. Therefore, it is recommended that future research should use a longer period of data and wider coverage of companies to include more companies outside of the companies in the FTSE / JSE Responsible Investment Index Series.

6. REFERENCES

ODNOS IZMEĐU INVESTICIJA U LJUDSKI KAPITAL I NETO DOBITI TVRTKE

SAŽETAK RADA

Članak istražuje doprinos investicija u ljudski kapital (HCI) ostvarenju dobiti na burzi dionica u Jahennesburgu – Društveno odgovorno investiranje (SRI) tvrtki. Sekundarni podaci o dobiti tvrtki, investicijama u ljudski kapital – HCl (glavna nezavisna varijabla) i prometu od prodaje - STO (kontrolna varijabla) prikupljeni su iz integriranih izvješća 28 tvrtki za razdoblje od 6 godina 2010-2015. Koristeći panel data pristup i statistiku regresije analiza je pokazala dva značajna rezultata. Prvo, vrijednost P na utjecaj dviju nezavisnih varijabli (HCI i STO) pokazuje znatan odnos P=0,0001. Drugo, ako HCI djeluje nezavisno, ono pokazuje negativan, ali ne i znatan, odnos s neto dobit. Međutim, takav odnos je privremen. Dugoročno HCI pokazuje tendenciju pozitivnog učinka na neto dobit. Stoga, tvrtke ne bi trebale određivati HCI kretanje dobiti samo u kratkoročnom razdoblju. Trebalo bi pričekati na pravi benefit. Članak preporučuje daljnje istraživanje koje bi pokrilo veći broj tvrtki u dužem razdoblju.

Ključne riječi: investicija u ljudski kapital; neto dobit; financijsko poslovanje
THE EFFECT OF DEFLATION ON THE FINANCIAL MARKETS OF CROATIA AND GERMANY

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ABSTRACT

In recent years, the term deflation has been frequently mentioned in Croatian economic circles. This paper deals with said topic, presenting the influence of deflation and inflation on capital prices in financial markets while taking into account the examples from Croatia and Germany. The goal is to show that annual changes in deflation directly influence capital costs in said markets. The paper is divided into units in a way that starts from defining inflation and deflation, and separating the financial markets by deflation type with examples. It deals with the correlation of interest rates, government bonds and stock prices with nominal and real interest rates. Capital Asset Pricing Model (CAPM) has been selected as a method to check the capital cost deflation impact because it meets the required essential assumptions. The indicated theory is proven by examples throughout the paper.

Key words: inflation, deflation, capital cost, CAPM model, financial markets
1. INTRODUCTION

Deflation is the result of an imbalance in the economy that is reflected in the decline of prices. The deflation rate is measured by the GDP deflator and consumer index, and in some cases with the index of producer prices. Monetary neutrality suggests that changes in the amount of money do not affect real variables (production, employment, real wages and real interest rates), therefore the real interest rate and the nominal interest rate should be differentiated. The real interest rate is the nominal rate minus the inflation rate (Mankiw 2010). This paper gives an answer to the question of how inflation causes rise in capital prices in financial markets and vice versa. The Capital Asset Pricing model will be used to demonstrate this impact, which will link risk and yield on the example of Croatian and German capital markets.

2. THEORIES THAT LINK INFLATION AND INTEREST RATES

Classical British economists gave interest rate theory (Irving Fisher 1930), (Böhm von Bawerk 1949), in which interest rates determine the amount of savings and investment capital.

2.1. CLASSICAL INTEREST RATE THEORY

Interest rates are important to economists to understand the link between current and future economic cycles through the impact of interest rates on savings and investments. Adapting nominal interest rates to expected inflation rates is called the Fisher effect. Expected inflation is not considered a risk, the risk is unexpected inflation affecting all investments, including those on the capital market. The expected inflation including real inflation forms long-term interest rates (Mankiw 2010). This effect does not have to be applicable to a short period of time, primarily because of unexpected inflation, which is caused by various shocks. On the contrary it is possible that unexpected deflation occurs (eg a war that caused a fall in oil prices). The price mechanism allows the balance of the microeconomic model and when it is borne by uncertainty caused by unexpected inflation, the market equilibrium is lost and there is no more economic efficiency in play.

2.2. LIQUIDITY PREFERENCE THEORY

Liquidity preference theory is the theory of short-term interest rate changes (Keynes 1936). The liquidity effect exists but is generally short-term
and is one of the factors that affect the level of interest rates. Keynes described the importance of tendency to invest and the uncertainties with which this tendency decreases. It is assumed that the money supply is non-elastic, or that income can remain unchanged because of money as a resource that is controlled by the state. For Keynes, money demand is the same as the sum of transactional and speculative demand. Inflation is the result of proactive capital policy so as not to diminish the tendency to invest. The interest rate facilitates the flow of savings into investments, rationalizes the available loan offer through investment assets with the highest returns, and brings balance of supply and demand on national money. It thus becomes a state policy tool that regulates the relationship between savings and investment, so interest rates are reduced if the economy is growing sluggish. The financial system is determined by speculative demand and the behavior of the capital market participants. However, it is difficult to determine the height of the natural interest rate even with a time lag. Economic policy is driven by the goal of maintaining a profit rate.

2.3. CREDIT THEORY

Price stability defines the real value of money. Lower interest rates are generally a sign that the value of money is strong. Numerous examples of economic resonance can be found that compare low interest rates with loose monetary policy, based on which projections of future high inflation and raising interest rates are made. Inflation is always and everywhere a monetary (cash) phenomenon (Friedman 2010). In a paper on the Japanese economy (Reviving Japan), Friedman argues that higher monetary growth further reduces the short-term interest rates. As the economy revives, interest rates will start to grow. Due to an increase in company’s and creditors’ inflation expectations, interest rates will end at a higher level than the initial one. However, the interest rate (credit) channel is not the only channel through which monetary policy affects the amount of money in circulation and therefore prices. The level of nominal interest rates includes the expectation of future the value of money. According to Fisher’s Hypothesis, the higher the expected inflation, the higher the nominal interest rate, and the creditor will require the debtor to repay a larger nominal amount. An overhauled monetary policy that increases prices (expected inflation) would lead to an interest rate increase and a rigid monetary policy with expected deflation would pressurize interest rates downward (real interest rates could fall below zero).

Angeloni et al. (2003) investigate the impact of monetary policy instruments on investment in the business sphere. They investigated how interest rates affect business investments in Eurozone countries. They concluded
that differences in interest rates between the observed countries are driven by asymmetric monetary transfer, which means that interest rates are not defined by the price of money but rather the prices of credit in a period of time, also depending on the supply and demand of the credit. The willingness of potential debtors and creditors to engage in credit transactions depends on a number of factors, including the availability of profitable capital investment opportunities. Credit theory proves that the risk-free interest rates are determined by the effect of supply and demand of credit. The credit comes from the domestic banking savings system and from foreign investors. Demand for credit is non-elastic in relation to interest rates, i.e., significant interest rate change is required in order to change credit demand. Corvoisier and Gropp (2002) have studied the concentration of the banking sector of the EU states, claiming that it does not lead to an increase in interest rates due to increased competition among banks does not allow it.

2.4. THE RATIONAL EXPECTATIONS THEORY

The theory of rational expectations proves that money and capital markets are highly efficient and almost instantly incorporate new information into interest rate levels and prices of securities. The founder of the doctrine of rational expectations Muth (1961) believes that the rationality of expectations can be assured if expectations are in line with models explaining the behavior of economic entities. The starting point of the hypothesis of efficient markets is the assertion that the prices of securities reflect the total available information (Fama 1991). The prerequisite of a strong form of this hypothesis is that there is no cost of information, no transactional costs and no costs for adjusting prices for available information (Grossman and Stiglitz 1980). A more sensible version of the efficiency hypothesis says that prices reflect available information to a point where marginal uses of that information do not outweigh marginal costs (Jensen 1978). If financial markets are effective, interest rates will always be balanced. Vajanne (2007) on the integration of the banking system in the EU talks about the convergence of interest rates on credit and concludes that the process of integration of the money market is realistic regardless of its slowness. Grgić et al. (2006) looks at the monetary convergence of European countries by comparing them with the EU average.

Due to liquidity needs, banks are interconnected through the common market, which is of the utmost importance for the functioning of the banking system (Ercegovac and Kundid 2011). Bankers need to be cautious because they control somebody else’s money, and there are crises because of the bank’s natural tendencies to raise interest rates and limit credit as they can not perfectly predict the future and therefore they not enter into new
investments easily. The Bank is an important microeconomic unit of a macroeconomic entity. As the state of affairs changes, the quality of bank credit changes as well. The primary variable in bank operations is the protection of liabilities, i.e., business operations that do not endanger the ability of the bank to return to its clients the funds entrusted to it. In order to “protect itself from the future” the bank increases the interest rates, because higher interest rates mean higher profits, and thus greater maneuvering space for the bank. These are strategic decisions of banks that depend on business policy. As the economic situation improves, the conditions for bank lending are improved. As the economy is more stable, the interest rates will be lower because the bank does not have to insure itself with a higher interest rate in asset operations.

3. THE EFFECT OF DEFLATION ON FINANCIAL MARKETS

Central banks can not manage inflation directly, but through interest rates or with the amount of money in circulation (liquidity), thus boosting investment and consumption. Ahmad et al. (2013) studies the impact of central bank monetary policy on credit interest rates. Short-term interest rates show oscillations, while in the long run they show a strong influence of the level of the central bank’s interest rate on the market interest rate. The Central Bank of Japan as well as the ECB have defined success with achieving their own target inflation of up to 2% per annum. This control means taking care that the economy is making a profit rate, which is not possible without inflation. Inflation is most often the result of previous policies and events, usually two years back.

In this paper Capital Assessment Model (CAPM) is used to test the claims of the impact of inflation on capital costs as it links the value of capital and its risk return. The model gives a choice of expected yield and variances. Capital Asset Pricing as a One-Index Model has been developed by (Sharpe 1964), (Lintner 1965), (Mossin 1966) and is represented by the formula:

\[ E(r) = R_f + \beta \times (R_m + R_f) \]

- \( E(r) \) – the cost of capital or the expected return on the security
- \( R_f \) – risk-free return (most often based on ten-year government bonds)
- \( \beta \) – beta (a measure of market risk / security price movement in relation to the market)
- \( R_m \) – market return (the relevant “index” is taken, e.g., in Croatia it is Crrobex)
The assumption for CAPM is that there is a risk that can and can not be diversified (systemic risk). The interest rate reflects the risk premium against the risk-free investment, for which the interest rate of the long-term government bond is used, which is affected by inflation, that is deflation. Systemic risk refers to unpredictable market factors, such as inflation, exchange rate, GDP growth or decline, etc., and all market participants are subject to it regardless of productiveness, product quality and business scope. The beta coefficient represents the risk associated with a security that measures its non-diversifying risk, more precisely the shares compared to the overall market return or some index (Crobex, S & P500).

3.1. CASE ANALYSIS OF GERMANY

The impact of deflation on financial markets will be looked at in the German market, which is historically the closest to the Croatian market. There is a difference between understanding inflation in Germany versus Croatia. Germany has achieved an unemployment rate below 4%, which contributes to a very high level of liquidity in account balances and makes it more difficult for the peripheral countries to improve competitiveness in comparison. Using Deutsche Bank’s data and comparing them with the CAPM model with an intangible premium (the German government’s ten-year bond), we will try to answer the question of whether inflationary changes cause capital price fluctuations in the German financial market. As an risk-free premium, a 10-year German government bond will be used, and as a benchmark for long-term interest rates the required securities yield in Germany will be used. The risk of government bonds is negligible, while for other types of bonds the risk is significant. Deutsche Bank’s data will serve as an example of a developed financial market:

Table no.1. CAPM variables for the Republic of Germany from 2000 to 2015. (Frankfurt Stock Exchange)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation (Germany)</td>
<td>1,40%</td>
<td>1,90%</td>
<td>1,20%</td>
<td>0,10%</td>
</tr>
<tr>
<td>Risk-free market premium</td>
<td>5,26%</td>
<td>3,35%</td>
<td>2,74%</td>
<td>0,50%</td>
</tr>
<tr>
<td>Market risk premium</td>
<td>5,51%</td>
<td>4,79%</td>
<td>4,31%</td>
<td>6,25%</td>
</tr>
<tr>
<td><strong>Calculation:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected market return</td>
<td><strong>10,77%</strong></td>
<td><strong>8,14%</strong></td>
<td><strong>7,05%</strong></td>
<td><strong>6,75%</strong></td>
</tr>
<tr>
<td>Cost of capital</td>
<td>15,71%</td>
<td>17,46%</td>
<td>16,88%</td>
<td>12,99%</td>
</tr>
<tr>
<td><strong>Cost of capital:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allianz</td>
<td>9,90%</td>
<td>12,41%</td>
<td>10,40%</td>
<td>7,59%</td>
</tr>
<tr>
<td>Deutsche Post</td>
<td>6,44%</td>
<td>7,18%</td>
<td>7,04%</td>
<td>6,98%</td>
</tr>
</tbody>
</table>
The premium of market risk in Germany is very significant when comparing inflation trends with the yield of German government bonds. The table shows that the results are consistent because changes in the expected return on capital and inflation are moving in the same direction. It is apparent that the data is not in full correlation, ie a 2% deflation increase does not cause a 2% capital cost reduction. This means that the movement of capital costs affects inflation and other elements of systemic risk. There are a lot of elements to this and the most significant are the changes in the relative inflation rate, the change in the relative interest rate, the change of expectations of future exchange rates, the relative level of change in income and government regulatory changes. Regardless of the impact of these variables, the example consistently shows the correlation between inflation and cost of capital, and inflation as a component of systemic risk has the decisive influence.

3.2. CASE ANALYSIS OF CROATIA

Through the liquidity credit channel, the European Central Bank also causes deflation in Croatia, reflecting on government bonds, as well as changes in price of the most important Croatian shares. Using data from Zagrebacka banka, the following table presents the risk-free premium of Croatian government bonds and market risk premium, the sum of which makes the expected price changes of shares on the Croatian capital market.

Table no.2. CAPM variables for the Republic of Croatia from 2000 to 2014. (CRO-BEX index)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Inflation (Croatia)</td>
<td>4,5%</td>
<td>3,00%</td>
<td>1,10%</td>
<td>-0,30%</td>
</tr>
<tr>
<td>Risk-free market premium</td>
<td>7,50%</td>
<td>4,42%</td>
<td>6,28%</td>
<td>3,55%</td>
</tr>
<tr>
<td>Market risk premium</td>
<td>7,06%</td>
<td>6,29%</td>
<td>7,31%</td>
<td>10,43%</td>
</tr>
</tbody>
</table>

Calculation:
Anomalies on the Croatian financial market which were triggered by the crisis in 2008 reflect the global economic situation and the rise in the prices of securing risk of excessive deficits in transition countries. The rise in CDS prices causes a rise in profit demand on the Croatian capital market (CAPM formula). As a result, Croatia’s bonds in the post-risk period are more risky than German bonds. Croatia’s debt risk risk reduces the possibility of issuing government bonds on the foreign market and increases risk premiums. However, looking at the beta of Croatian companies, the risk movement is consistently following deflation, similar to German companies. According to the CAPM model, the anomalies in the Croatian financial market have been triggered by a large increase in market risk premium, ie interest rates through the credit channel (CDS growth). Despite this, the impact of deflation on the overall decline in interest rates and the reduction in total cost of capital is evident, as is the impact of deflation on financial markets in general. For example, Bokan et al. (2010) studied the impact of the global financial crisis on economic activity and on the financial market situation in Croatia. During the crisis period 2008-2009. banks in Croatia were taking loans from maternity banks, which led to an increase in interest rates on loans on the Croatian financial market. If the financial crisis affects the growth of interest rates, using the CAPM model on German and Croatian markets it can be concluded that deflation will affect the reduction in the expected return on financial markets.
4. CONCLUSION

This paper shows the impact of deflation on financial markets through the reduction of interest rates, which also causes a reduction in the cost of capital. The more deflation expectations are higher, more savings will be made, less investments will be made, there will be a reduction income and the effects of deflation will reduce stock prices. Through risk-free expected return, and the ratio of risk and return on the Croatian financial market, using the average values from 2000 to 2015 the CAPM model points that the deflation in Croatia affects the expectations of growth of returns. Although market risk premiums and credit interest rates have increased for the Croatian financial market, de-
flation has not reduced the expected return on the capital market but only slowed it down, as is the case with the German financial markets. The reason for applying the CAPM model derives from the growth of risk premium, i.e., the anomaly of the excessive discount on long-term government bonds caused by the movement of insurance premiums (CDS). The risk premium is compensated for investors due to the uncertainty of the future value of the shares determined by cash flow and according to the expected movement of the unpaid rate and premiums.

Changes in expectations on the basis of deflation in the Croatian market are a reflection of the imprecise application of the CAPM model, due to the invisible components of systemic risk. The model measures the impact of systemic risk on stocks, but does not take into account the influence of other risks and psychological effects specific to a particular country. Beta is calculated by regressing historical data which is a disadvantage because it relies on data that does not have to be a reliable indicator of the future. Due to the inability of the model to measure other variables affecting the movement of the cost of capital on the Croatian financial market, this paper’s assertion cannot be absolutely affirmed or dismissed. This does not indicate a poor choice of the CAPM model, as the financial market deflation impact impetus was achieved by the CAPM model on the example of the German financial market for the period 2000 to 2015.

The contribution of this paper is an indication of anomalies in the Croatian financial market, whereby the Central Bank of Croatia has been given a potential advantage for quantitative easing. The fall in interest rates in Croatia could have been achieved with a proactive monetary policy with small constraints. There was a window of opportunity to create short-term generous liquidity conditions for commercial banks in order to stimulate consumption and investments, which the Central Bank of Croatia did not take advantage of again due to fear of exchange rate fluctuations. Namely, the price of capital on financial markets also depends on expected exchange rate fluctuations, which responds in the opposite direction to the interest rate differential between countries. The occurrence is known as interest rate parity, and occurs when the difference between interest rates in the country and abroad equates to the difference between the term and spot exchange rate. The criteria of interest rate parity is a balanced foreign exchange market when earnings in different currencies are the same when expressed in the base currency. As long as there is a difference between interest rates at home and abroad, interest rate changes will continue.
5. REFERENCES


UTJECAJ DEFLACIJE NA FINANCIJSKA TRŽIŠTA HRVATSKE I NJEMAČKE

SAŽETAK RADA

Na prostorima Republike Hrvatske zadnjih se godina spominje pojam deflacija. Ovaj rad se bavi tom temom, odnosno prikazuje utjecaj deflacijske i inflacijskog utjecaja na cijene kapitala na financijskim tržištima uzimajući u razmatranje primjere Republike Hrvatske i Njemačke. Cilj mu je pokazati da promjene deflacijske na godišnjoj razini direktno utječu na trošak kapitala tih tržišta. Rad je podijeljen na cjeline na način da se polazi od definiranja inflacijske i deflacijske, te podjele financijskih tržišta prema utjecaju vrsta deflacijske uz naznačene primjere. Obrađuje povezanost kamatnih stopa državnih obveznica i cijena dionica te nominalne i realne kamatne stope. Kao metoda za provjeru utjecaja deflacija na cijene kapitala izabran je Capital Asset Pricing Model (CAPM) zbog toga što ispunjava tražene bitne pretpostavke. Kroz rad se naznačena teorija dokazuje primjerima.

Ključne riječi: inflacija; deflacija; cijene kapitala; CAPM model; financijska tržišta
EDUCATING THE NEXT GENERATION IN FINANCES FOR A RESOURCED, STABLE, AND RESPONSIBLE SOUTH AFRICA

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ABSTRACT

This paper is part of a working paper series in responsible financial management in the South African context. In this paper we examine the aggregate level of household indebtedness, the historical levels of unsecured loans, and the statistics of civil cases for debt. On the basis of our literature review, we observed that South Africans, in general, are heavily indebted.

The authors are of the view that the bleak picture painted by reports covered in our literature review is symptomatic of the low levels of financial literacy in South African society. Thus, it was deemed crucial that the next generation is surveyed to estimate their financial literacy maturity. In this regard, the financial literacy levels of students that are studying towards an accountancy qualification in the South African context were surveyed. This survey was carried out in order to determine their grasp of the use of funds in the context of debt and spending.

In terms of the research approach, this study followed the Jump$tart Coalition’s criteria for determining levels of financial literacy. Accordingly, a mean score below 60% is considered financially illiterate. Results indicate that on aggregate, students that are studying towards an accountancy qualification scored 63.49%, which is close to a level deemed financially illiterate by the Jump$tart Coalition. This confirms our assumption that in general, South Africa has a low level of financial literacy.

Keywords: Accounting qualification; financial literacy; indebtedness; South Africa
1. BACKGROUND AND INTRODUCTION

Previous studies confirm that there is a relationship between financial literacy and over indebtedness. A study conducted by French and McKillop (2014) highlight that “a lack of financial literacy is correlated with higher debt burdens, incurring greater fees, loan defaults and loan delinquency”.

Other researchers that agree with French and McKillop’s (2014) notion that there is a relationship between the level of indebtedness and financial literacy include Campbell (2006), Bucks and Pence (2008), Gerardi, Goette, and Meier (2010), Disney and Gathergood (2013), and Duca and Kumar (2014).

Accordingly, the aforementioned researchers propose that the main cause of financial illiteracy is an inability to understand interest rate calculations, which leads to higher debt burdens, high costs of borrowings, and ultimately defaults (Campbell, 2006; Bucks & Pence, 2008; Gerardi et al., 2010; Disney & Gathergood, 2013; Duca & Kumar, 2014).

Brown, Grigsby, van der Klaauw, Wen, and Zafar (2015) agree with the abovementioned reasons regarding the relationship between financial literacy and indebtedness. They observe that in the American context, “young Americans are heavily reliant on debt and have clear financial literacy shortcomings”. Additionally, they lament the fact that there aren’t sufficient studies on the relationship between financial education and subsequent debt behaviour.

In the South African context, Eiselen and Nkoutchou (2012) point out that debt among South Africans is a significant challenge, in the sense that debt is often used for the purpose of consumption. If debt is used for the purpose of consumption, Nkoutchou and Eiselen (2012) suggest that this reduces retirement savings, as part of these savings are used to repay the incurred debt. Sabri and Juen (2014) support this view, and they justify it by stating that expenses do not disappear upon retirement, indeed while debt is being repaid; expenses also have to be taken care of.

It is crucial that individuals have high a grasp of their financial needs and are able to achieve financial balance (Ryan & Ryan, 2016). For the balance to be achieved, Swart (2016) suggests that there should be efficient personal financial management, business management, and national management. This study focuses on personal financial management. In this regard, this study deemed it crucial that the next generation is studied to establish their financial literacy maturity.

For the researchers’ purpose, students who were studying towards an accountancy qualification at the University of Johannesburg in South Africa were surveyed, which is the main limitation. However, the choice of participants, which is students in this case, is crucial, as individuals’ needs tend to change
throughout their lifecycle, and factors change. In this regard, Family Economics and Financial Education (2015) argues that financial planning also changes, therefore targeting this group of society, which is deemed to be at the entry level of adulthood, will contribute in ensuring that the next generation is well versed in finances, for the purpose of a well-resourced, stable, and responsible South Africa. The main objective of the study is to understand the financial literacy maturity of South African students.

The researchers used four factors as a proxy of financial literacy, namely:

- the students’ ability to understand their income;
- their grasp of spending patterns and debt;
- their grasp of savings and investments; and
- their grasp of money management.

The proxy that was utilised to gauge financial literacy on students is consistent with other proxy methods deployed in similar studies. In this regard, it is noted that French and McKillop (2014) observed that the Organisation for Economic Cooperation and Development (OECD) have already developed internationally comparable survey data on financial literacy and capability. Accordingly, the OECD’s Financial Literacy Measurement Sub-group has identified a number of dimensions of financial literacy, which include numeracy and money management skills (French & McKillop, 2014). Furthermore, it is observed that the Jump$tart Coalition utilises similar criteria to determine levels of financial literacy.

2. LITERATURE REVIEW

The National Treasury (2016) report estimates that only 6% of South Africans will be able to retire financially independent. Some of the factors on this estimate are due to debt burdens and lack of financial education. Using economic and financial statistics, Monden (2009) demonstrates that individuals with debt burdens are less financially secure compared to people who are less indebted.

According to van Rooij, Lusardi, and Alessie (2012), financially sophisticated individuals do not face difficulties in processing and gathering information. As such, Rooij et al. (2012) suggest that these individuals stand a better chance of making astute financial decisions. This point is reiterated by Lusardi and Mitchel (2014) and Gaudecker and Von (2014), who posit that there is a positive relationship between financial knowledge and astute financial decision-making.
Several studies have raised the question of over-indebtedness in South Africa (Swart, 2016; Ritha, 2015; Chipote & Tsegaye, 2014). To understand the extent of over-indebtedness in South Africa, the researchers sought to explain the process from the default phase through to the stage of being listed on the national credit bureau. According to the Credit Ombudsman (2011) as cited in Moloi (2014) the term ‘default’ means an economic agent (person or company) is in default in their obligation. Moloi (2014) has described this as a situation where an individual has failed to make payment as per a stipulated agreement. In terms of South African law, the lender has a recourse in which they can ask for a court judgment against the defaulter.

Accordingly, a judgement is a court order requested by a credit provider when a borrower has failed to make the payment as per their agreement. The following process is ordinarily followed by the lender to obtain a court order, namely the issuance of a summons, which informs an individual or company concerned of the court appearance, which allows them to come forth to present themselves. Where an individual or company concerned fails to appear in court, a default judgement is then issued and entered onto the credit bureau’s system (Credit Ombudsman (2011) in Moloi, 2014).

To further understand the extent of over-indebtedness, researchers accessed the Statistics South Africa’s (StatsSA) (2015) Survey of Statistics of Civil Cases for Debt. According to this report, as of February 2015, 24 858 civil judgements for debt amounting to R357 million were recorded (StatsSA, 2015). The Stats SA report indicates that the largest contributors to the total value of judgements were:

- other debts (R102,2 million or 28,6%);
- money lent (R97,0 million or 27,2%); and
- services (R56,6 million or 15,9%).

Much as the StatsSA report indicates that the number of civil judgments had declined, they remain at high levels. For instance, StatsSA indicates that from 01 March 2014 to 28 February 2015 the number of civil summonses issued for debt reached 56 843, whereas the number of civil judgements recorded for debt were 24 858.

According to the Research on the increase of unsecured personal loans in South Africa’s credit market, prepared on behalf of the National Credit Regulators, as of 2012, unsecured lending was the highest growing, in the form of loans that were advanced by credit providers. In this regard, the report indicates that this form of loans accounted for 49.4% of the year on year growth of the total loans advanced in 2012, representing a year on year growth of R39 946 611 269. Could it be that some of the defaulters that are part of the StatsSA’s Survey of Statistics of Civil Cases for Debt had actually taken unsecured loans?
The concerns regarding indebtedness are also raised in the Quarterly Bulletin of the South African Reserve Bank (SARB) (2017). In this report, SARB appears to be lamenting the fact that household debts were increasing in the country. In this regard, SARB observed that “Household debt increased marginally in the fourth quarter of 2016” (SARB, 2017), however, they did concede that “as a percentage of annualised disposable income, household debt had decreased from 74.1% in the third quarter of 2016 to 73.4% in the fourth quarter. On balance, the cost of servicing household debt as a percentage of disposable income inched lower from 9.6% in the third quarter of 2016 to 9.5% in the fourth quarter”.

As noted in the discussion above, there is not much literature on students’ financial literacy in the South African context. This study will contribute to the discourse aimed at financial literacy of South African university students. Having dealt with the question of debt and spending in the form of irresponsible spending and ultimately over-indebtedness, as observed in the analysed reports above, the researchers reiterate that the main aim of this paper is to survey students that are studying towards the accountancy qualifications to establish their financial literacy maturity levels. The researchers state that their choice of surveying accounting students was informed by the fact that that these students are expected to be future financial leaders/advisors, thus promoting financial responsibility in the broader South African economy. Below, the research process followed is explained, which is then followed by a presentation of results, and then the summary and conclusion are provided.

3. RESEARCH PROCESS

The researchers reiterate that the main objective of the study is to understand the financial literacy maturity levels of South African students. Convenient sampling was used, and as such, students that are studying towards an accountancy qualification at the University of Johannesburg in South African were surveyed. It is noted that this is also the main limitation of this study.

In terms of the research population, first, second, and third year Bachelor of Accounting (BAcc) students at the University of Johannesburg were the targeted respondents. This meant a total number of potential responses was estimated at 1420 BAcc students, being 519 BAcc first year students, 495 second year BAcc students, and 406 third year BAcc students.

Following the sample frame selection, a questionnaire was designed with four main factors that were deemed to be a proxy of financial literacy. Earlier, it had been noted that our selected proxy that was used to gauge financial literacy on students had been deemed consistent with other proxy methods
deployed in similar studies. Table 1 below demonstrates the selected proxy of financial literacy for the purpose of this study.

**Table 1 – Financial literacy proxies**

<table>
<thead>
<tr>
<th>Income</th>
<th>Spending and debt</th>
<th>Savings and Investments</th>
<th>Money Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questions concerning this concept included the grasp of what money is, how it is exchanged, where and how it is generated, and how it is disposed of.</td>
<td>These questions were concerned with budgeting, transactional accounts, costs of borrowing, and over-indebtedness.</td>
<td>Questions around this concept included risk, budgeting, savings, investments, taxation, and inflation.</td>
<td>These questions were concerned with budgeting and risk.</td>
</tr>
</tbody>
</table>

The questionnaires containing the questions relating to the table above were administered to respondents in October 2015. In terms of the research ethics of the University of Johannesburg, respondents were informed that they had the right not to participate in the survey. Those that opted to participate were further informed that they could stop at any time should they feel uncomfortable, and that there would be no repercussions for them whatsoever. To protect the identity of the respondents, they were informed that all personal identifiers would be removed, and that the collected data would be aggregated.

Of the 1420 potential responses, 652 responses were received, representing 45.9% of the targeted population, broken down as follows: 297 (57%) BAcc first year students; 243 (49%) second year BAcc students; and 94 (23%) third year BAcc students. Of the total valid responses, it was noted that 18 respondents did not indicate their level of academic year.

**4. RESULTS PRESENTATION**

As discussed in the preceding paragraphs, our questionnaire used four factors as a proxy of financial literacy, namely: grasp of income; grasp of spending patterns and debt; grasp of savings and investments; and grasp of money management.

For the purpose of this paper, the BAcc students’ grasp of their personal spending patterns and debt was the factor that was employed. The questions posed for the spending and debt proxy, tested the students’ grasp of the concept of debt and the resulting implications in the form the high cost of borrowing. The results of spending patterns and debt are presented below.
A Which of the following statements is NOT correct about most ATM (Automated Teller Machine) cards?
   You can get cash anywhere in the world with no fee.
   66.70% 65.90% 68.20% 66.70%

B If you are behind on your debt payments and go to a responsible debt counselling service organisation such as Debt Counselling South Africa, what help can they give you?
   They can work with those who loaned you money to set up a payment schedule that you can meet.
   86.90% 85.90% 88.20% 86.70%

C Which of the following statements is TRUE?
   Banks and other lenders share the credit history.
   80.80% 85.90% 83.70% 83.20%

D Under which of the following circumstances would it be financially beneficial to you to borrow money to buy something now and repay it with future income?
   When you need to buy a car to get a much better paying job.
   69.80% 68.80% 72.50% 69.80%

E Which of the following credit card users is likely to pay the GREATEST rand amount in finance charges per year, if they all spend the same amount per year on their cards?
   Erin, who only pays the minimum amount each month.
   55.30% 57.50% 62.20% 57.20%

F Scott and Eric are young men. Each has a good credit history. They work at the same company and make approximately the same salary. Scott has borrowed R12 000 to take a foreign vacation. Eric has borrowed R12 000 to buy a car. Who is likely to pay the lowest finance charge?
   Eric will pay less because the car is collateral for the loan.
   55.10% 57.80% 54.10% 55.10%

G Barbara has just applied for a credit card. She is an 18-year-old high school graduate with few valuable possessions and no credit history. If Barbara is granted a credit card, which of the following is the most likely way that the credit card company will reduce its risk?
   It will start Barbara out with a small line of credit to see how she handles the account.
   55.70% 56.10% 57.00% 55.70%

H Which of the following statements best describes your right to check your credit history for accuracy?
   Your credit record can be checked once a year for free.
   48.30% 48.00% 48.30% 48.00%

I Aggregate score
   65.15% 65.50% 66.50% 65.40%

Looking at individual scores, it is apparent that first year students are closer to the levels deemed ‘financially illiterate’ compared to their counterparts. In this regard, first year level students scored 61.2% on aggregate, whereas second year students and third year students scored 65.3% and 66.2% on aggregate respectively.

It is understandable that the first year students scored on a level close to financial illiteracy due to the fact that some of the financial concepts regarding the sources and the use of funds may not yet have been presented in their syllabus. However, what is of concern is that second and third year students, on aggregate, scored below 70%. In general, the supposition would be that finance students at second and third year level would score higher percentages than the general populace.

5. SUMMARY AND CONCLUSION

This paper sought to survey students that are studying towards accountancy qualifications so that the researchers could establish the students’ financial literacy maturity levels. The choice of surveying accounting students was
informed by the fact that these students are expected to be future financial leaders/advisors, thus promoting financial responsibility in a broader South African economy.

To construct the survey methodology, the researchers followed the Jump$tart Coalition’s criteria for determining the level of financial literacy, where a mean score below 60% is considered to fall under the category of financially illiterate. The researchers established that by scoring 61.2%, first year level students scored closer to the levels that the Jump$tart Coalition criteria would have deemed financially illiterate, compared to their counterparts who scored higher.

On the other hand, both second year and third year students scored 65.3% and 66.2% on aggregate respectively, which is five to six points higher than the mean score of 60%. On the basis of the Jump$tart Coalition’s criteria, researchers deem these students to be semi-financially literate.

There would generally be a supposition that finance students already engaged in second and third year studies would have scored higher percentages than the general populace as a result of their theoretical exposure to financial concepts. However, and as can be seen from the data presented above, this is not the case. Thus, it raises uncomfortable questions as to whether or not undergraduates with accounting/financial qualifications would themselves be prone to the over-indebtedness that is currently crippling most South African consumers.

A further uncomfortable thought is whether or not these students who we expect to be future financial leaders/advisors so that they can be at the forefront of promoting financial responsibility in a broader South African economy have acquired the necessary capabilities that could lead to a South Africa that is resourced, stable, and responsible.

6. REFERENCES

POUČAVANJE SLJEDEĆE GENERACIJE O FINANCIJAMA ZA BOLJU, STABILNIJU I ODGOVORNIJU JUŽNU AFRIKU

SAŽETAK RADA

Ovaj članak je dio skupine radova o odgovornom financijskom menadžmentu u kontekstu Južne Afrike. Bavi se istraživanjem ukupne zaduženosti domaćinstava, povijesnim razinama nesigurnih pozajmica i statistikom građanskih parnica vezanih za dugovanja. Obzirom na postojeću literaturu zaključili smo da su stanovnici Južne Afrike znatno zaduženi.

Autori smatraju da loša slika zaduženosti prikazana u izvješćima zapravo dokazuje nisku razinu financijske pismenosti društva u Južnoj Africi. Stoga je izuzetno bitno procijeniti financijsku pismenost sljedeće generacije. U svezi s tim provedeno je istraživanje o financijskoj pismenosti studenata računovodstva u kontekstu Južne Afrike. Istraživanje je provedeno kako bi se utvrdila njihova sposobnost korištenja sredstava u kontekstu zaduživanja i potrošnje.

U istraživanju su korišteni JumpStart Coalition kriteriji pri određivanju financijske pismenosti. Srednji rezultati ispod 60% se smatraju financijskom nepismenošću. Ukupni rezultati su pokazali da studenti računovodstva postižu razinu od 63.49%, što je vrlo blizu razini financijske nepismenosti prema JumpStart Coalition. Time se potvrđuje pretpostavka da općenito Južna Afrika ima nisku razinu financijske pismenosti.

**Ključne riječi:** kvalifikacija iz računovodstva; financijska pismenost; zaduženost; Južna Afrika
INTEGRATED REPORTING - CONCEPT AND IMPACT ON PERFORMANCE OF CROATIAN COMPANIES

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ABSTRACT

Integrated reporting is a combination of financial and non-financial information intended primarily for external stakeholders. However, it is also an effective management control tool, as it promotes integrated thinking, strengthens the company’s reputation and overall success. The aim of this paper is to investigate the extent to which The International <IR> Framework (IR) is recognized in Croatian companies and whether a higher level of efficiency encourages companies to socially more responsible performance. The starting point is The International <IR> Framework whose concept is analytically expound with a critical review of the distinction between reporting on social responsibility and the concept of integrated reporting. The empirical research included companies from Zagreb Stock Exchange and those companies that are members of Croatian Business Council for Sustainable Development (HR BCSD). The research is based on the data collected from Amadeus base, Annual Financial Statements Registry of FINA and company’s websites. A content analysis of 138 companies is conducted according to their reports and performance by selected relevant indicators. The results confirm that companies that more transparently report about their results through data on economic, environmental and social aspect of business have greater efficiency measured by financial results. Furthermore, the results show that these same companies, in addition to the economic aspect pay more attention to ecological and less to social indicators in their reports.

Key words: integrated reporting; performance; Croatian companies
1. INTRODUCTION

The aim of this paper was to investigate the extent to which The International Integrated Reporting Framework (IR Framework) was recognized in Croatian companies and whether a higher level of efficiency encourages companies to more accountable socially responsible business and transparent reporting. Therefore, the paper first summarizes the concept of integrated reporting with reference to the differences on the basis of reporting on corporate social responsibility, and the results of the empirical research prove that companies which have better performance score based on selected indicators report more transparent and comprehensive on their business results. In addition, the research confirms which aspects of the Triple Bottom Line (TBL) concept are most often used in the practice of large Croatian companies.

Integrated or comprehensive reporting is a reflection of global trends in business relation risk mitigation by more transparent reporting on business results. Transparency is one of the principals of corporative management which stands out over the last ten years and more, through variety of principals, guidelines, laws etc. Thus, the concept of integrated reporting is a product of a global association called The International Reporting Council-IIIRC.1 Aim of this project was to raise the level of information quality through a more comprehensive reporting approach. Therefore, innovations in reporting were implemented primarily for the purpose of investors' protection. Namely, detailed and comprehensive information about how single organizations create their value through time enables efficient decision making for potential investors. Hence, the intent is to show “integrated thinking” about how management with the help of other stakeholders create value for investors. Integrated thinking takes into account the interconnectedness and interdependence between a whole set of factors that influence on the process of value creation of an enterprise, including the capital that the company uses, the capacity it possesses, the way of creating a business model and strategy, and other activities and business results as well as the outcomes of past, present and future capitals.

Integrated reporting is important for nowadays managing system, which should be based on sustainable social responsible business activity. Sustainability presumes “development that meets the needs of the present without compromising the ability of future generations to meet their own needs“ (WECD, 1987). The concept of sustainability is very complex, dynamic and requires establishing balance between economic, environmental and social goals. From the aspect of

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1 IIIRC is a global coalition of regulators, investors, companies, standard setters, the accounting profession and non-governmental organization, whose main mission is to establish integrated reporting and thinking within mainstream business practice as the norm in the public and private sectors, with emphasis on creating added value.
businesses, sustainability is referred through the concept of socially responsible business, which means that business policy of decision making and planning has to be within the environmental and social requirements. That simultaneously imposes guidelines for sustainable business and the need for a single, global reporting methodology.

2. TBL CONCEPT – BASE FOR INTEGRATED REPORTING

The concept of TBL, also known as People, Planet, Profit concept (3P), starts from the premise that in the terms of sustainability, economic or commercial aspects are not sufficient for evaluation of business but preferably reporting and acting upon environmental and social aspects of business. Broader comprehension of this concept includes values, strategy and practice and the way to use it for accomplishing economic, environmental and social goals (Elkington, 2006). Due to the diversity of understanding the TBL concept, in the past decade the practice has generated a whole line of reports under different names such as: “report on sustainability”, “report on social responsibility”, “reports on corporate governance”, “social reporting”, “tripple bottom line report”, “3P report”, etc. Beside general economic, mostly financial data and indicators, all these reports have in common the inclusion of more environmental, social and governance data (ESG- Environmental, Social and Governance). Reporting based on the triple bottom line concept was first established by Elkington (1997). His main aim was to connect profits through the word “bottom line” and to get the respect of and connect environmental and social performance through the word “triple”. Demands of today are that the system of measuring business performance should consider all effects that companies have on the society, including human rights, freedom, equality etc. (Vitezić, 2010).

The concept of integrated reporting is based on the TBL concept and the current practice of informing on financial results of businesses, but requiring a full disclosure of financial and nonfinancial information (Oliver i sur., 2016). It should be emphasized, however, that Corporate Social Responsibility (CSR) reporting differs from integrated reporting on two bases: first, the content is not equal, and second, the intention is different (Velte i Stawinoga, 2016). Reporting on social responsibility includes economic, environmental and social aspect of business and is intended to all direct and indirect stakeholders. The IR Framework goes beyond these aspects and broadens its reporting on to the process of creating value. That way the investors, to whom the reports are intended, and the rest of the stakeholders could get insights into the companies’ way of creating create added value over time, and based on the insight into performance indicators and plans, subjectively estimate how they will create value in the future. The main goal is to achieve the highest quality of reporting based on linking strategy, management
and creating corporate results in the context of economic, ecological and social requirements. Although integrated reporting is directed to everyone, investors are still most interested in seeing this kind of reporting as a key innovation that will enhance long-term investment. Benefits for the management structure are better understanding strategy in terms of ecological, social and economic impacts; a greater overview of risk reduction, dealing with resource constrains; greater opportunity for investments; lower costs. On the other hand, it is important to point out the benefits for shareholders: better knowledge of business, greater number of long-term sustainable performance indicators, increased trust on the basis of transparency, etc. A research (IIRC, 2014) showed that the largest number of respondents, 92% of them, think that IR results in better understanding of enterprise value creation. Another 84% of respondents believe that companies profit from the new concept of reporting, while 71% of respondents believe that IR brings more competitive strategic benefits.

2.1. RESEARCH METHODOLOGY AND RESULTS

The concept of integrated reporting is relatively new and is in its beginning stage, as the Framework was adopted only in 2013 and is applied on a voluntary basis. Therefore, reporting in Croatian companies is mainly based on a narrower understanding of the TBL concept, using mostly Global Reporting Initiative (GRI) guidelines or companies own forms of reporting on social responsibility. Consequently, in the empirical part of this paper under integrated reporting we consider reports that include economic, environmental and social aspects of the business.

2.1.1. Sample and methodology

In order to establish how much Croatian businesses recognized the global framework of integrated reporting and how much the efficiency of business effects the level of its implementation, an empirical research was conducted on the sample of 138 companies in a period from 2011 to 2015. To test the impact of business performance, five indicators were selected, i.e. statistically there were 690 observations. The sample included companies whose active securities were listed on Zagreb stock exchange on June 28, 2017, and companies who were members of Croatian Business Council for Sustainable Development (HR BCSD).

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2 GRI guidelines are a unique handbook for encouraging sustainability reporting based on the triple bottom line concept, and periodically revised to provide actual guidance on effective sustainability reporting.

3 Banks, insurance companies, investment funds, cities, companies in bankruptcy and liquidation, ministries and the Zagreb Stock Exchange d.d. were excluded from the sample.

4 The total number of members of HR BCSD on June 28, 2017 was 36, but in the sample were taken 34 companies in total, as one member was a bank and another one did not have available data in the Amadeus Bureau van Dijk database.
on the same date, and whose five year financial data (2011-2015) could be found on Amadeus Bureau van Dijk data base. Certain lack of data for the calculations of selected indicators of efficiency were supplemented from Annual Financial Reports Registry of Croatia (RGFI). The sample includes two groups of companies: first, companies who use GRI guidelines for reporting or create their own forms of reporting on sustainability (41 businesses) and second, companies who report only on financial results of business or eventually some other non-financial business data, mostly number of employees (97 businesses).

The biggest part of the sample includes large (73) and medium companies (40), while only 25 are small companies. Manufacturing industry has the biggest share (33%), followed by accommodation and food service activities (21%), professional, scientific and technical activities (11%), wholesale and retail trade; repair of motor vehicles and motorcycles (9%), transportation and storage (8%). Other services participate individually with less than 4%. Companies that present their business results by integrated reporting make a sample of 78% large companies, 12% medium and 10% small companies, mostly represented in the manufacturing industry (49%). Data for defining level of incorporation of economic, social and environmental indicators were selected form internet pages, precisely from annual financial reports from selected companies. Results are shown by using appropriate analytical methods. Impact of efficiency on integrated reporting and socially responsible business is determined on the base of descriptive statistics, tested with parametric (T-test) and non-parametric statistic methods (Mann-Whitney U test).

2.1.2. Results of research

The aim of this paper was to determine the development of integrated reporting as a way of positive practice of responsible business governance in Croatia, and to prove that companies with higher levels of efficiency are more inclined to the integrated way of reporting. Precisely, the research confirms thesis of previous researches (Waddock & Graves, 1997, Weber et.al. 2008, Vitezić, 2011, Tuareta, 2015), that there is a positive connection between business performance and integrated way of reporting. Therefore, following hypothesis was formed: greater level of efficiency encourages companies to implement integrated reporting and socially responsible behavior.

In order to confirm the hypothesis several indicators of efficiency were selected. Indicators that are most commonly used to show business performance of individual companies are: return on assets (ROA), return on equity (ROE), earnings before interests and taxes (EBIT), earnings before interests, taxes, depreciation, and amortization (EBITDA) and profit margin (PRMA). For gathered five-year data, descriptive statistics was performed using software package Stata 14, and these results were given:
Table 1.: Descriptive statistics of the whole sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of observations</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>690</td>
<td>3.65987</td>
<td>8.131343</td>
<td>0</td>
<td>111.6</td>
</tr>
<tr>
<td>ROE</td>
<td>690</td>
<td>7.436793</td>
<td>19.98132</td>
<td>0</td>
<td>219.042</td>
</tr>
<tr>
<td>EBIT</td>
<td>690</td>
<td>47457.64</td>
<td>318266.8</td>
<td>-1712000</td>
<td>3200449</td>
</tr>
<tr>
<td>EBITDA</td>
<td>690</td>
<td>135796.2</td>
<td>587273.3</td>
<td>-432150.3</td>
<td>6935000</td>
</tr>
<tr>
<td>PRMA</td>
<td>690</td>
<td>8.116335</td>
<td>17.34235</td>
<td>0</td>
<td>159.63</td>
</tr>
</tbody>
</table>

Source: authors

Table 2.: Descriptive statistics of companies with IR

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of observations</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>205</td>
<td>5.00401</td>
<td>7.503443</td>
<td>0</td>
<td>48.548</td>
</tr>
<tr>
<td>ROE</td>
<td>205</td>
<td>8.26659</td>
<td>11.01722</td>
<td>0</td>
<td>67.734</td>
</tr>
<tr>
<td>EBIT</td>
<td>205</td>
<td>132068.1</td>
<td>535586.6</td>
<td>-1712000</td>
<td>3200449</td>
</tr>
<tr>
<td>EBITDA</td>
<td>205</td>
<td>386497.3</td>
<td>1013754</td>
<td>-432150.3</td>
<td>6935000</td>
</tr>
<tr>
<td>PRMA</td>
<td>205</td>
<td>6.84481</td>
<td>8.728014</td>
<td>0</td>
<td>68.252</td>
</tr>
</tbody>
</table>

Source: authors

Table 3.: Descriptive statistics of companies without IR

<table>
<thead>
<tr>
<th>Variable</th>
<th>Number of observations</th>
<th>Mean</th>
<th>Standard deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>485</td>
<td>3.091728</td>
<td>8.324929</td>
<td>0</td>
<td>111.6</td>
</tr>
<tr>
<td>ROE</td>
<td>485</td>
<td>7.086054</td>
<td>22.73287</td>
<td>0</td>
<td>219.042</td>
</tr>
<tr>
<td>EBIT</td>
<td>485</td>
<td>11694.46</td>
<td>137761.7</td>
<td>-427734</td>
<td>2644947</td>
</tr>
<tr>
<td>EBITDA</td>
<td>485</td>
<td>29829.72</td>
<td>141190.8</td>
<td>-365801</td>
<td>2646346</td>
</tr>
<tr>
<td>PRMA</td>
<td>485</td>
<td>8.653784</td>
<td>19.87615</td>
<td>0</td>
<td>159.63</td>
</tr>
</tbody>
</table>

Source: authors

According to descriptive statistics it can be concluded that companies which apply the integrated reporting, in average have much better results on most of the selected indicators, that companies which do not use the concept. For example, average value of return on assets is 5.0% in companies with integrated reporting, while companies that do not apply the concept have 3.1% return on assets with larger standard deviation. Four out of five indicators have considerably larger statistical means in companies that implement IR, i.e. only profit margin shows larger average value in companies that do not have any kind of integrated reporting. This can indicate that revenue gain still does not depend on the
orientation of companies towards sustainability, as well as there is no sufficient spending towards those purposes. Larger performance measured by indicators of profitability is an outcome of large value of assets and equity (in average over 7 and 8 times for companies with IR) as a base for creating profits. Amortization is in average 14 times larger than in companies which do not report on other aspects of business, which implicates on large values of material assets engaged in the process of creating business effects.

Aforementioned results confirm that companies with greater efficiency spend more for environmental and social components of sustainability and are more socially responsible. It is presumed that because of efficient performance those companies have larger possibilities for environmental and social expenditures, and thus monitoring of achieved results through the implementation of integrated reporting.

In order to determine significance of selected indicators, the hypothesis was tested with parametric test (T-test) and non-parametric test (Mann-Whitney U-test). T-test determined statistical significance of difference between means of companies which report outside the financial framework and those who do not. Two-tailed test with 95% interval of reliability, determined that ROA, EBIT and EBITDA are statistically significant with assumption of equality and inequality of variances, while ROE and PRMA are statistically insignificant for both assumptions. Non-parameter test, which presumes equality of variances, detriments that all indicators are statistically significant, i.e. there is a significant difference in the sum of ranges between companies with integrated reporting and those without it.

**Table 4.:** Significance tests

<table>
<thead>
<tr>
<th>Indicator</th>
<th>T-test (two-tailed; 95%)</th>
<th>Mann-Whitney test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diff. of Mean</td>
<td>Diff. of Std. Err.</td>
</tr>
<tr>
<td>ROA</td>
<td>equal variances</td>
<td>-1.912282</td>
</tr>
<tr>
<td></td>
<td>unequal variances</td>
<td>-1.912282</td>
</tr>
<tr>
<td>ROE</td>
<td>equal variances</td>
<td>-1.180537</td>
</tr>
<tr>
<td></td>
<td>unequal variances</td>
<td>-1.180537</td>
</tr>
<tr>
<td>EBIT</td>
<td>equal variances</td>
<td>-120373.6</td>
</tr>
</tbody>
</table>
This research also determined which aspects of TBL concept i.e. indicators of GRI G4\(^5\) (2013) guidelines for reporting on sustainability, are mostly present in the practice of Croatian companies. According to analysis of reports based on GRI guidelines, it has been found out that the following indicators are mostly used:

- **Economic aspect** – economic impact (economic value retained\(^6\) financial implications, risks, investments amount, subventions and financial stimulation etc.), market presence and procurement practices (share of local work force, ratio of wages towards minimum wages in Croatia and minimum local wages), indirect impact (investments in local infrastructure).

- **Environmental aspect** – used materials towards the volume or weight, quantity of produced dangerous and non-dangerous waste, percentage of used materials that belong to recyclable input materials, intensity (% decrease) of emission of greenhouse gas and energy consumption, total extraction and emission of water, percentage and level of recycling and usage of water, total expenses for environmental protection, number of vehicles and fuel consumption, significant real and potential negative effects of supply chain on environment and measures taken, value of significant fines and total number of non-financial penalties for not following the low and directives from segments of care, etc.

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\(^5\) G4 are the latest revised GRI guidelines adopted in 2013.

\(^6\) According to GRI G4 guidelines, it is calculated as ‘Direct economic value generated’ represented by revenues, less “Economic value distributed”, which includes operating costs, employee wages and benefits, payments to providers of capital, payments to government (by country) and community investments.
• **Social aspect** – labor practices and decent work (fluctuation and structure of employees, average number of hours and annual expenses for training, ratio of wages, average wage, etc.), human rights (total number of discrimination cases), society (confirmed cases of corruption) and product responsibility (customer satisfaction and number of complaints).

It can be concluded that socially responsible companies in addition to the economic aspects pay greater attention to environmental indicators in their reports, while the level of social aspect is still predominantly focused on labor practices and decent work, although according to the GRI G4 guidelines that aspect has 157 indicators.

3. CONCLUSION

Over the last twenty years, the concept of sustainable business increasingly penetrates the consciousness of management structures. Due to the growing emphasis on transparency, it also includes information pointing to the attitude and policy of the management and owners about ecological and social aspects of the business. By using integrated reporting as a concept, foremost intended for investors but also all interested stakeholders, economic, environmental and social aspects of business are widened by additional information which can determine how companies create their value. With a comprehensive overview it is possible to analyze and evaluate business more securely and thus reduce business risk. On the sample of 138 Croatian companies it has been confirmed that the greater levels of efficiency performance encourage companies to implement integrated reporting and socially responsible behavior. Furthermore, companies which apply some of the forms of integrated reporting have in average better results: greater return on assets, greater return on equity and greater gross profit, compared to companies which do not apply the concept. In addition, most companies report not only on financial but also on environmental and social aspects of business, while environmental indicators are dominating. In Croatian companies integrated reporting, in accordance to the IR Framework, is still not completely accepted, although considering all the recommendations and guidelines about the need for comprehensive reporting about sustainability, it can be expected that in the future more and more companies will except the broader concept of reporting with emphasis on creating value, relationship towards environment and society.

7 In the GRI G4 guidelines in the aspects of social category are in total given 157 indicators, of which 52 refer to sub-category labor practices and decent work. In the environmental aspect are given 168 indicators, and in economic 49.
4. LITERATURE


INTEGRIRANO IZVJEŠTAVANJE - KONCEPT I UTJECAJ NA USPJEŠNOST HRVATSKIH PODUZEĆA

SAŽETAK RADA

Integrirano izvještavanje kombinacija je financijskih i nefinancijskih informacija namijenjenih prvenstveno vanjskim akterima-dionicima. No ono je i učinkovit alat upravljačkog nadzora jer potiče integrirano tj. cjelovito razmišljanje, jača reputaciju i ukupnu uspješnost poduzeća. Cilj ovog rada je istražiti koliko je globalni okvir za integrirano izvještavanje (IR) prepoznat u hrvatskim poduzećima i da li veća razina efikasnosti potiče poduzeća na društveno odgovorinije poslovanje. Polazište je Okvir za integrirano izvještavanje (IIRC) čiji koncept se analitički razlaže s kritičkim osvrtom na razliku između izvještavanja o društvenoj odgovornosti i koncepta integriranog izvještavanja. Empirijsko istraživanje obuhvatilo je poduzeća sa Zagrebačke burze te ona poduzeća koja su u Hrvatskom poslovnom savjetu za održivi razvoj (HR PSOR). Temeljem podataka iz Amadeus baze, Registra godišnjih financijskih izvještaja FINA i internet stranica poduzeća analizirao se je sadržaj izvještavanja te, odabirom relevantnih pokazatelja, uspješnost poslovanja na uzorku od 138 poduzeća. Istraživanje je potvrdilo da poduzeća koja transparentnije izvještavaju o svojim rezultatima kroz podatke o ekonomskom, ekološkom i društvenom aspektu poslovanja imaju veću efi-

Ključne riječi: integrirano izvještavanje; uspješnost; hrvatska poduzeća
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- **Preliminary paper** presents the primary findings of research in progress, which requires urgent publication, but without the level of deep and thorough study required for the original scientific paper;
- **Review article** contains a detailed and comprehensive critical review of a certain problem area, but with no significant originality of the obtained results;
- **Professional paper** contains the information and experience relevant for a certain profession, but without scientific characteristics.
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**Duties of Editors**

**Publication decisions**

The editorial board is responsible for deciding which of the articles submitted to the journal should be published.

The editorial board will be guided by the policies of the journal and constrained by legal requirements related to libel, copyright infringement and plagiarism. Members of the editorial board will confer and refer to reviewers recommendations in making this decision.

**Equality**

An editor, member of the editorial board or reviewer must evaluate manuscripts for their intellectual content without regard to race, gender, political philosophy, sexual orientation, ethnic origin, citizenship, or religious belief of the authors.

**Confidentiality**

The review process takes place in two stages. In the first stage the editor must not disclose any information about a submitted manuscript to anyone other than the corresponding author, reviewers, potential reviewers, and other editorial advisers. This stage concludes with an agreement between the author and reviewers about the continuation of their cooperation in the open reviewing forum in which issues of confidentiality do not arise.

**Disclosure and conflicts of interest**

Unpublished materials disclosed in a submitted manuscript must not be used in an editor’s, reviewer’s or any other reader’s own research without the express written consent of the author.
Duties of Reviewers

Contribution to Editorial Decisions

Reviewers assist the editorial board in making editorial decisions and through the editorial communications during the open review process with the author may also assist the author in improving the paper.

Qualification of Reviewers

Any selected referee who feels unqualified to review the research reported in a manuscript or knows that its prompt review will be impossible should notify the editor and excuse himself from the review process. The editorial board is responsible for ensuring the competence of the reviewers.

Promptness

Authors will normally receive feedback about the acceptance of his/her paper for the reviewing process within three weeks and in another three weeks (he) will normally receive the first response from the reviewers.

The editorial board is responsible for ensuring the promptness of responses in the open review process.

Confidentiality

Any manuscripts received for review in the open review process are subjected to the criteria of enhancing their rationality through the mutual rational controls of critical discussion.

Establishing Standards of Objectivity through Critical Discussion

Reviews should be conducted objectively. Authors are encouraged to make explicit the internal criteria they use to evaluate the validity of their contributions to knowledge. Personal criticism of the author is inappropriate. Referees should express their views clearly with supporting arguments in the spirit of enhancing the quality of the paper through the mutual rational controls of critical discussion.

Acknowledgement of Sources

Reviewers should identify relevant published work that has not been cited by the authors. References to the ideas of others should be accompanied by the relevant citation. A reviewer should also call to the editor’s attention any substantial similarity or overlap between the manuscript under consideration and any other published paper of which they have personal knowledge.

Disclosure and Conflict of Interest

Information or ideas obtained through peer review must only be used with the explicit agreement of the participants in the peer review. Reviewers
should not consider manuscripts in which they have conflicts of interest resulting from competitive, collaborative, or other relationships or connections with any of the authors, companies, or institutions connected to the papers.

**Duties of Authors**

**Reporting standards**

Authors of reports of original research should present an accurate account of the work performed as well as an objective discussion of its significance. Underlying data should be represented accurately in the paper. A paper should contain sufficient detail and references to permit others to judge the validity of the contributions to knowledge. Authors are asked to provide the raw data in connection with a paper for editorial review, and should be prepared to provide public access to such data and should in any event be prepared to retain such data for at least two years after publication.

Fraudulent or knowingly inaccurate statements constitute unethical behavior and are unacceptable.

We believe it is important to emphasise that the editorial board is not responsible for copyrights and for any ethical consequences of the publication of any particular contribution (written or in the form of multimedia). However, we expect that all people providing sources of data for published accounts have been given informed consent and that no one in any way involved in the processes of the research has been coerced into co-operation or is unknowingly being co-opted. Authors should have written permission of parents to include photos or videos of children and juveniles into research accounts.

**Originality and Plagiarism**

The Editorial Board of JAM recognise different cultural beliefs about the acceptability of quoting the ideas of others as if they were one's own. The documents concerning the submission of papers for JAM review recognise these different cultural beliefs and emphasise the statement that 'authors should ensure that they have written entirely original works, and if the authors have used the work and/or words of others that this has been appropriately cited or quoted.'

**Concurrent Publication**

Submitting the same manuscript to more than one journal concurrently, constitutes unethical publishing behaviour and is unacceptable.
Authorship of the Paper

Authorship should be limited to those who have made a significant contribution to the conception, design, execution, or interpretation of the reported study. All those who have made significant contributions should be listed as co-authors. Where there are others who have participated in certain substantive aspects of the research project, they should be acknowledged or listed as contributors.

The corresponding author should ensure that all appropriate co-authors and no inappropriate co-authors are included on the paper, and that all co-authors have seen and approved the final version of the paper and have agreed to its submission for publication.

Disclosure and Conflicts of Interest

All authors should disclose in their manuscript any financial or other substantive conflict of interest that might be construed to influence the results or interpretation of their manuscript. All sources of financial support for the project should be disclosed.

Fundamental errors in published works

When an author or reader discovers a significant error or inaccuracy in the published work, it is the author’s obligation to promptly notify the journal editor and work with the editor to retract or correct the paper.