Ferdowsi University of Mashhad Press (FUMP)

IJAAF

IRANIAN JOURNAL OF
ACCOUNTING, AUDITING and FINANNCE

Volume 5, Issue 4, Autumn 2021

Serial Number: 17

ISSN-Print: 2588-6142
ISSN-Online: 2717-4131

Title	Authors	Page Number
Online Accounting Education: Opportunities and Innovations	Maryam Sadat Tabatabaeian Shahnaz Mashayekh Abdolrasoul Rahmanian Koushkaki	1-20
Designing a Structural-interpretive Model of Information Disclosure Factors related to Sustainable Development Accounting	Mohammadreza Abbasi Astamal Mehdi Zeynali	21-38
Auditor Switching and Abnormal Returns	Mohammad Javad Zare Bahnamiri Narges Sarlak Niloofar Beyki	39-53
The Effect of Auditors' Characteristics on Relationship between Geographical Diversification and Real Earnings Management	Amir Ghafourian Shagerdi Seyed Hojjat Saberi Postchi	55-75
Management Characteristics and Audit Opinion Shopping	Maryam Seifzadeh Mahdi Salehi Bizhan Abedini Mohammad Hamed Khanmohammadi Mohammad Hossein Ranjbar	77-99
Developing a Model for Improving Tax Auditing Quality in Iran	Eisa Abyazi Heydar Mohammadzadeh Salteh Yaqoub Aghdam Mazraeh Ali AkbBar Nonahal Nahr	101-118
Credit Rating of Companies listed on the Tehran Stock Exchange and the Effect of Tax Avoidance Using PSO Algorithm	Hani Gharavi Ahangar Seyed Hossein Naslemousavi Ali Akbar Ramezani	119-134

https://ijaaf.um.ac.ir

In the Name of God, the Compassionate, the Merciful

Ferdowsi University of Mashhad

Iranian Journal of Accounting, Auditing & Finance (IJAAF)

Volume 5, Number 4,Autumn 2021, Serial 17

ISSN (Print): 2588-6142, ISSN (Online):2717-4131

Editorial Office: Faculty of Economics and Administrative sciences, Ferdowsi University of Mashhad, Azadi Sq., Mashhad; IRAN; P.O. Box: 1793; Postal Code: 9177948974; Tel: +98 51 38803742; Fax: +98 51 38763852
http://ijaaf.um.ac.ir E-mail: ijaaf@um.ac.ir

Table of Contents

Title	Authors	Page
Online Accounting Education: Opportunities and Innovations	Maryam Sadat Tabatabaeian Shahnaz Mashayekh Abdolrasoul Rahmanian Koushkaki	1
Designing a Structural-interpretive Model of Information Disclosure Factors related to Sustainable Development Accounting	Mohammadreza Abbasi Astamal Mehdi Zeynali	21
Auditor Switching and Abnormal Returns	Mohammad Javad Zare Bahnamiri Narges Sarlak Niloofar Beyki	39
The Effect of Auditors' Characteristics on Relationship between Geographical Diversification and Real Earnings Management	Amir Ghafourian Shagerdi Seyed Hojjat Saberi Postchi	55
Management Characteristics and Audit Opinion Shopping	Maryam Seifzadeh Mahdi Salehi Bizhan Abedini Mohammad Hamed Khanmohammadi Mohammad Hossein Ranjbar	77
Developing a Model for Improving Tax Auditing Quality in Iran	Eisa Abyazi Heydar Mohammadzadeh Salteh Yaqoub Aghdam Mazraeh Ali AkbBar Nonahal Nahr	101
Credit Rating of Companies listed on the Tehran Stock Exchange and the Effect of Tax Avoidance Using PSO Algorithm	Hani Gharavi Ahangar Seyed Hossein Naslemousavi Ali Akbar Ramezani	119

Editorial Board

Received articles will be published after professional referee, and being approved by the editorial board. Submission to this Journal is required to send at least two files include: an "Article cover" and an "Anonymous file of the main article", through systems, http://ijaaf.um.ac.ir/ .Submission of a manuscript implies that the paper has not been published before and it is not under consideration for publication elsewhere. Please pay attention to the following:

1-Article Cover

The file should be typed in Word software (office), and A4 sized page which include:

- Full title of the paper centered in Times New Roman 16.
- Author's name centered in Times New Roman 12 (Bold),
- Author's characteristics centered in Times New Roman 11 (italics), including the authors' name (the name of correspondence author should be marked with an asterisk), academic rank and the name of the institution or university (do not use pseudonym and nickname), complete address, telephone number and fax of correspondence author and e-mail address of all authors.

2- Anonymous file of the main article

The main article should be typed in Word software (office), A4 sized page and utmost in 7500 words (including references), and numbered pages while page margins are as follows: margin from the above 4 cm, from the below 5/6 cm, from the left 5/4 and from the right 5 cm. The line spacing should be set at 1 cm and the beginning of each paragraph indented about 0.3 cm, the entire text should be Justified and include the following:

The first page:

- Full title of the paper, centered in Times New Roman 16.
- Abstract in Times New Roman 11 and utmost 165 words, including four issues: (1) Subject and purpose of the paper, (2) methodology, (3) findings, and (4) conclusions, and Contribution (maximum).
- Utmost 5 keywords in Times New Roman
- Subject classification code in Times New Roman This coding is designed for subject classification in economic literature and how to use it in detail is available on the following website:www.aeaweb.org/journal/jel_class_system.html
- The main titles in manuscript (including abstract, introduction, literature review, methodology, findings and Conclusion) left aligned in Times New Roman 12(Bold) and sub-titles (such as Keywords, subject classification code and other necessary(important) titles) left aligned in Times New Roman 11(bold) and in the left alignment, content of main manuscript in Times New Roman
- As far as possible, do not use any image in the text and if used, it should be high- quality black and white photos.

Structure of second page until the end of manuscript is as follow:

- *Introduction* Some paragraphs contain explaining the problem, literature review, object (purpose), importance and necessity of it.
- *Literature review* a review of the literature investigates only related researches chronologically and the results exploit at the end of the section theory matrix or conceptual model that document research variables and Formulate research hypotheses.
- *Methodology* including Methods, data collection tools, population, sample size and sampling methods, analysis and model testing hypothesis, definition of study variables and operational definition of them can be in presented the same section that model testing is represented and there is no need to repeat.
- *Results* including the findings compare it with the findings of previous and interpretation of compliance or inconsistency of findings with research findings and theories.

- *Conclusion* includes a summary of the problem, provide a summary of the results and overall conclusion and recommendations based on the results (policy recommendations is necessary only in applied research and, if necessary, recommendations for future research accordant with the research limitations or how development of current research;
- *References* are as Section 3-2 and
- *Endnotes* terminology and some necessary explanations provide in the endnote (no footer) and as a two-column table (contains the endnote number and content of endnote with invisible lines (No Border). Numbering the endnotes are as text and doing without the use of EndNote technique.

3- Other important points in the original file

3-1- References inside the text

- In order to reference within the text (APA) method should be used; so the author's last name with the year of publication it is presented in the text respectively. If there are two authors, last names' will be separated by "and" and if more than three people, "et al." will be used
- After the last name of the first author. If the number of resources is more than one, a semicolon (;) will be used to separate them.
- Any reference which is mentioned in the article, must be included in references part.
- If it is required to explain more about terms or words within the text, endnote can be used.

3-2- References

To set the reference list, use the (APA) method, as follows:

Books: Author, A.A. (Year of Publication). *Title of work*. Publisher City, State: Publisher.

When citing a book in APA, keep in mind:

- Capitalize the first letter of the first word of the title and any subtitles, as well as the first letter of any proper nouns.
- The full title of the book, including any subtitles, should be stated and *italicized*.
- Magazines: Author, A.A. (Year of Publication). Title of the Article. *Journal Title, Volume* (Issue), pp.-pp.
- When citing a magazine in APA, keep in mind:
- You can find the volume number with the other publication information of the magazine.
- You can typically find page numbers at the bottom corners of a magazine article.
- If you cannot locate an issue number, simply don't include it in the citation.
- Online magazine article: Author, A.A. (Year). Title of the Article. *Magazine Title, Volume* (Issue), Retrieved from http://xxxx
- When creating an online magazine citation, keep in mind:
- The volume and issue number aren't always on the same page as the article. Check out the other parts of the website before leaving it out of the citation.
- List of references should not be numbered. If there are 2 or more authors alike, in addition to alphabetical order, the publisher year also should be ordered. In order to avoid the pitfalls of the various sources listed, the beginning of each reference is 0/5 cm protrusion.
- If there are two authors, last names' will be separated by "and" and if more than three people, last names' will be separated by a comma (,) and the last one with "and".

3-3- Charts, Tables and Formulas

Charts' title should be writhen below and tables' title on the top centered in Times New Roman 11 and Bold. Charts and tables render within the text and immediately place after the explaining paragraph. The content of charts and tables in Times New Roman 10

- Tables and images number from No. (1) To refer to the content of the images and diagrams in the text, use the number and appropriate referral.
- Inserting decimal numbers, instead of using slash (/), and show negative numbers by using the minus sign.
- Tables include variables, should contain a column for the symbols used for variables.

- Formulas represent centered in Times New Roman11and render in a two column table with no border and number with figure in parentheses.

3-4- Other notes

- There is no need to spaces before dot, comma, semicolon, colon, question mark, exclamation mark and, but after these signs shall be placed a spaces.
- Use spaces before opening and after the closing parenthesis.
- Articles should not be sent to Persian/English journal or another language at home and/or abroad simultaneously.
- If the format and structure of submitted articles are not same as what mentioned in this guide, it won't be accepted.
- Journal can edit and delete some sections, without any change in its content and received journals will not bring.
- Responsibility for the accuracy of the article is the author.
- The file should be named in English. This name should include the first author's last name and sending date. Articles will be received only by Journal Website.
- In order to expedite the referee process and publishing an article, we will ask respected professors and researchers to ensure technical and literary editing and enforce this guide.

The journal is devoted to research papers. Research paper is extracted from the research project, master's dissertation or thesis.

Receiving the papers is only possible electronically.

Editor's Note

I am pleased to announce that the Ferdowsi University of Mashhad is publishing Iranian Journal of Accounting, Auditing & Finance (IJAAF). On behalf of the board of the IJAAF and my co-editors, I am glad to present the Volume 1, Issue 1 of the journal in December 2017; the journal will publish four issues in a year. The board includes experts in the fields of accounting, finance and auditing, all of whom have proven track records of achievement in their respective disciplines. Covering various fields of accounting, *IJAAF* publishes research papers, review papers and practitioner oriented articles that address significant issues as well as those that focus on Asia in particular. Coverage includes but is not limited to:

- Financial accounting
- Managerial accounting
- Auditing
- Taxation
- Accounting information systems
- Accounting education

Perspectives or viewpoints arising from regional, national or international focus, a private or public sector information need, or a market-perspective are greatly welcomed. Manuscripts that present viewpoints should address issues of wide interest among accounting scholars internationally and those in Asia in particular.

Yours faithfully,
Mahdi Moradi
Editor in Chief

Ferdowsi University of Mashhad

Iranian Journal of
Accounting, Auditing & Finance

Received: 2021-09-03
Accepted after revision: 2021-10-26
Published online: 2021-12-24

RESEARCH ARTICLE DOI: 10.22067/ijaaf.2021.40774

Online Accounting Education: Opportunities and Innovations

Maryam Sadat Tabatabaeian

Department of Accounting, Payame Noor University (PNU), Tehran, Iran

Shahnaz Mashayekh

Department of Accounting, Faculty of Social Sciences and Economics, Alzahra University, Tehran, Iran

Abdolrasoul Rahmanian Koushkaki

Department of Accounting, Payame Noor University (PNU), Tehran, Iran

Abstract

The spread of the COVID-19 pandemic and the need for online teaching methods in accounting education have led to changes in training in this field. Despite its many challenges, online education has provided an opportunity to revolutionise the quality, effectiveness, and efficacy of education. Before the COVID-19 pandemic, many researchers had already discussed the opportunities provided by online education. This study uses qualitative content analysis to determine the factors, conditions, and changes provided in online accounting education from the perspective of accounting professors to improve accounting education in Iran. The interviews with 17 accounting professors showed that online accounting education in Iran has created opportunities and led to innovations classified into nine main categories and can be the start of a more general change in accounting education and a step toward improving its quality.

Keywords: Online Education, COVID-19, Opportunities, Innovations, Accounting Professors

Corresponding author: Abdolrasoul Rahmanian Koushkaki
Email: *abr.rahmanian@gmail.com*

Number of Figures: 1
Number of Tables: 11
Number of References: 32
Pages: 20

https://ijaaf.um.ac.ir
E-Issn: 2717-4131

RESEARCH ARTICLE

1. Introduction

Accounting education in universities plays a crucial role in training professional accountants. Before the outbreak of COVID-19, i.e., until the first semester of the 2019-2020 academic year, Iranian universities taught specialised courses in this field to their students in person, which was also the most common method of teaching accounting throughout the world. After the outbreak of COVID-19, universities and educational institutes were forced to use online education methods to prevent the spread of the disease, and they were therefore faced with many challenges in education due to the unexpected circumstances emerging and the lack of appropriate infrastructure.

According to accounting professors and students, some of the challenges in implementing the online education method during the COVID-19 pandemic include the lack of internet access for students living in rural areas, power outages, being financially unable to buy smartphones, tablets, or laptops, the teachers' low computer literacy, the difficulty of explaining accounting concepts, the lack of interactions, the lack of examination security, unfamiliarity with designing appropriate exam questions, insufficient technical support (Sangster, Stoner and Flood, 2020) and difficulty in designing and updating technical information and issues (Grabinski et al., 2020).

Challenges do not in and by themselves mean absolute limitation and a barrier to continuing education. A different approach to the challenges that emerged during the COVID-19 pandemic shows that each can be a path towards evolving, innovation and progress and are opportunities for good change. Any constraint can also be an opportunity to build skills, make progress, and innovate. Examining the trend of changes in accounting education in the world, the growing need to use online education can be seen. With the widespread use of online education due to the prevalence of coronavirus, there is a prospect of using this educational method in the future (Rahmouni, 2020). As a practical and difficult field, accounting requires systematic measures, sufficient studies, and basic thinking to transfer from traditional teaching methods in the classroom to online education (Grabinski et al., 2020). There are very few researches in accounting education in Iran that can be studied to understand online accounting education and be aware of its opportunities. Therefore, to improve the quality of education, it is necessary to recognise the various dimensions of accounting online education and the opportunities available. Identifying opportunities for online accounting education in Iran can help predict the facilities and conditions of online education in the post-corona era. These opportunities can also be better utilised by identifying innovations created by certified accounting professors and introducing them to others. The importance of identifying opportunities and innovations in online accounting education can be expressed from three dimensions; First, it helps the planners of the educational system to anticipate, identify and strengthen the opportunities for growth and innovation and their optimal use in order to increase the quality of accounting education, to develop appropriate programs to promote education in this field; Second, it enables accounting professors to recognise and use these opportunities and innovations to improve the quality of education by using them; and third, Accounting students are introduced to opportunities and innovations that can enhance the quality of their education so that they can make good use of the online learning environment by recognising them.

The rest of this article explains the opportunities identified in online accounting education during the COVID-19 pandemic and previous years. Then, according to the interviews conducted with accounting professors in Iran, the opportunities and innovations provided by online education will be presented from their perspectives.

2. Theoretical Foundations and Background

Accounting professors and researchers have pointed out the weaknesses in accounting education

DOI: 10.22067/ijaaf.2021.40774

in terms of the expectation gap, the gap between accounting knowledge and practice (Etemadi and Fakhar, 2004; Rahnama Roodposhti, Vakili Fard and Raeszadeh, 2009), and the need to revise the accounting education method and employ new technologies within it (Mansuri, 2012). Throughout the world, many studies have been conducted by researchers to replace traditional methods of accounting education with new methods or ensure the use of a combination of new and traditional methods. As a result, some new methods have been proposed to improve performances, increase the quality of accounting education, and increase student satisfaction. One of these methods is online education, which is used synchronously, asynchronous or hybrid. Online education is based on the use of the internet and related technologies. There has always been a need to use Information Technology (IT) as part of the educational environment in accounting education. Still, this need has become more apparent in recent years with the rapid advances in IT. Before the outbreak of COVID-19 in Iran, online education was only used in a limited way as a pilot in a few universities (e.g., Tehran University, Isfahan University, Sharif University of Technology, Tarbiat Modares University, Payame Noor University, etc.).

According to the theory of constructivism, humans can learn anything if they make it meaningful in their minds. Also, knowing is synonymous with understanding how to act and do something. As a proponent of constructivism, Rousseau's idea is that problems must be *experienced* during education. As a result of this experience, the learner can give meaning to phenomena and determine their actions. Online accounting education can be an opportunity to simulate and demonstrate the real and practical environment of accounting and can thus help students understand accounting concepts (Braun et al., 2020).

According to constructivism, electronic technologies can be widely used in learning and help bring about changes in education. Technology can encourage professors and engage students in more complex tasks and content. For instance, technology can support professors in becoming informers rather than information disseminators; it can provide safe opportunities for teachers to become learners and share their ideas about curricula and teaching methods with others; it can also encourage students to perform more challenging tasks and increase the (Zofen, 2010).

The International Accounting Education Standards Board (IAESB) statement lists IT knowledge and skills required for professors to train accounting students to become professional accountants and perform tasks such as IT risk assessment and IT control (Wilson, 2014). Defining an accountant's core competencies, the American Association of Certified Public Accountants (AICPA) also considers the ability to use technology a factor that helps enhance students' skill development and highlights its role. The importance is given to the assessment of computer skills in the CPA test also shows the need for applying IT in accounting.

In Iran, the accounting profession needs graduates who can develop this profession, understand it from the information system perspective, and provide the skills and services required by potential business owners. According to international accounting education standards, the content of professional accounting education courses should include IT knowledge and capabilities (IFAC[1], 2010).

By examining the situation in different universities around the world during the COVID-19 pandemic, Sangster, Stoner and Flood (2020) stated that despite its many challenges, online education has been able to create many opportunities for accounting education, some of which include:

- Transformation in education based on innovation, digitalisation, globalisation, interdisciplinary relationships, and flexibility
- Creating a balance between research activities and teaching for professors

- Virtual visit with the students
- Eliminating travel and transportation time
- Employment during education
- Promoting conceptual learning
- Resolving educational problems
- Innovations (Sangster, Stoner and Flood, 2020).

Pre-COVID-19 research has also shown that students and professors have been very satisfied with the flexibility and convenience of online education, and many studies have shown satisfaction (Jones, 2016) and improved student performance and academic achievement (Coetzee, Schmulian and Coetzee, 2018) with the use of online education.

Research shows that online education has created opportunities for improving the quality and effectiveness of accounting training. For instance, according to Love and Fry (2006), the students' own building of knowledge and formulation of learning strategies for themselves, the choice of their preferred time, place, and style of learning, their development of self-sufficient and independent learning, and the promotion of critical thinking and analysis skills among them are some of the opportunities created in the context of online education.

According to Lillie and Wygal (2011), since the accounting profession makes extensive use of information and communication technology (ICT), the online method is an opportunity to promote the use of IT by students and develop their technological skills and effective interaction with customers and colleagues. Students can benefit from communication with their professors outside of class hours, and the effective communication of professors with students to further involve them in their own education are other opportunities provided through online education, as discussed by these researchers.

Guthrie, Burritt and Evans (2013) proposed that online education is an opportunity to discuss and study a particular accounting topic emphasised in the profession, which results in the training of expert accountants and the production of high-quality interactive resources. According to these researchers, other opportunities provided by this method include the increased access to education for people who are economically, socially, or geographically disadvantaged, the provision of professional education to a wide range of students and enthusiasts anywhere and anytime, the development of professional experience, real-time dissemination of accounting research findings, the creation of an environment for digital discussions of plans, and training professional accountants on a global scale. Einig (2013) viewed the use of online education as an opportunity for students to get things done at their own pace.

Humphrey and Beard (2014) state the use of the online approach as an opportunity to train students as individual learners and an opportunity to improve educational course management and time management by reducing the time spent on some tasks and increasing teachers' focus on high-quality activities that improve the effectiveness of teaching. Lawless (2014) also proposed learning effective time management and gaining experience using web-based tools and technologies as other opportunities provided by online education.

Bayerlein (2015) viewed online education as an opportunity for virtual internships in the business environment, resulting in integrating theoretical and practical knowledge, better learning, and employing in-depth study strategies (inappropriate learning environments). Also, using different learning styles, the fact that every person can use their preferred style, and the flexibility created are other advantages of this method. Bayerlein further stated that a result-oriented educational environment is needed to take advantage of these opportunities.

Arkorful and Abaidoo (2015) outlined the opportunities available through online education as

follows: Knowledge and competencies becoming effective by the access given to a wide range of information, reduction of costs, helping address manpower shortages in universities, increasing student satisfaction and reducing their stress, educating the community, cultural diversity, globalisation, achieving goals faster with less efforts, gaining experience from specialists in various fields, comprehensive learning with global relationships and dialogue with others, the ability to browse videos and content and view the details of activities, receiving and sending instant feedback in teacher-student communications, and teaching people with disabilities from anywhere.

Reyneke and Shuttleworth (2018) viewed this educational method as contributing to the comprehensive development of students' skills. By proposing the case study method in this educational context, they argued that skill development is one of the major educational opportunities this method provides. Montgomery (2018) also proposed online education as an opportunity to increase existing financial resources by offering more classes with larger numbers of participants during the day and week and a great opportunity for students interested in online communication.

Grabinski et al. (2020) considered online education an opportunity to acquire the additional skills needed and create added value for students. Chan (2020) also viewed the online approach during the COVID-19 pandemic as an opportunity for basic thinking about online education (e.g., planning to improve the quality of virtual services and expand simulation) and the internationalisation of higher education at home.

Providing opportunities for students to interact and work and thus solving the issue of isolation and distance from the study setting and even dropping out of school are other advantages of online education noted by Malan (2020). Achieving conditions that are difficult or impossible to achieve in a traditional environment and the students' comfort and self-reliance, personalisation of education, and diversification of the learning environment are other opportunities offered by the online approach, according to Braun et al. (2020). Rahmouni (2020) also considered online education a possibility for lifelong learning. In summary, previous studies have identified the opportunities and innovations identified in online accounting education:

Table 1: Opportunities and Innovations Introduced in Previous Research for Online Accounting Education

Research paper title	Name of authors (year)	Introduced opportunities and innovations
Seize the Opportunities that Online Education Offers, says a Lifelong Learner	Rahmouni, N. (2020)	Lifelong learning
Studying Coronavirus (COVID-19) and Global Higher Education: Evidence for Future Research and Practice	Chan, R. Y. (2020)	Simulate the work environment and create diversity in the learning environment Basic thinking about Online Education and the Internationalisation of Higher Education at Home
Accounting graduates with both online and traditional coursework: impact on hiring decisions	Braun, R. L., Boldt, M. N., Mauldin, S., & Viosca, C. (2020)	Comfort Personalisation of education Achieving conditions that are difficult or impossible to achieve in a traditional environment
Engaging students in a fully online accounting degree: an action research study	Malan, M. (2020)	Student employment opportunities Opportunity for interaction
Embedding e-Learning in accounting modules: The educators' perspective	Grabinski, K.; Kedzior, M.; Krasodomska, J., & Herdan, A. (2020)	Gain the additional skills that a professional will need in the future Create added value for students
Insights into accounting education in a COVID-19 world	Sangster, A., Stoner, G. and Flood, B. (2020)	Transformation in education Reduce costs by eliminating travel Promoting conceptual learning

		Resolving educational problems Innovations
Accounting education in an open distance learning environment: Case studies for pervasive skills enhancement	Reyneke, Y. and Shuttleworth, C. C. (2018)	A factor contributing to the comprehensive development of students' skills Proposing the case study method in this educational context
Perception of Online Accounting Graduates: State of Florida Hiring Managers' Perspectives	Montgomery, E. (2018)	Opportunity to increase existing financial resources by offering more classes
The role of e-learning, advantages and disadvantages of its adoption in higher education	Arkorful, V. and Abaidoo, N. (2015)	Teaching people with disabilities from anywhere Ability to browse videos and content and view activity details Send instant feedback on teacher-student communication Effectiveness of knowledge and competencies by the access given to a wide range of information Gaining experience from specialists in various fields Eliminate labour shortages in universities Achieving goals faster with less effort Educating the community, cultural diversity, globalisation Comprehensive learning with global relationships and conversation with others An opportunity to educate all sections of society Opportunity for a comprehensive learning Each person can use their preferred style, and flexibility is created
Curriculum innovation in undergraduate accounting degree programmes through "virtual internships."	Bayerlein, L. (2015)	Employing in-depth study strategies Virtual internship in the business environment and combination of theoretical and practical knowledge and better learning
Facing the Facts: opportunities and challenges of online learning	Lawless, E. (2014)	Increasing students' experiences in education Gaining experience using web-based tools and technologies Learning effective time management Train students as individual learners
Faculty perceptions of online homework software in accounting education	Humphrey, R. L. and Beard, D. F. (2014)	Increasing teachers' focus on high-quality activities that improve the effectiveness of teaching Opportunity to improve educational course management and time management by reducing the time spent on some tasks
Challenges for accounting and business education: blending online and traditional universities in a MOOC environment	Guthrie, J., Burritt, R. O. G. E. R. and Evans, E. (2013)	Professional education to a wide range of students and enthusiasts anywhere and anytime Training of expert accountants Training professional accountants on a global scale Discussing and studying a particular accounting topic that is emphasised in the profession Development of professional experience

DOI: 10.22067/ijaaf.2021.40774

		Production of high-quality interactive resources Real-time dissemination of accounting research findings Creation of an environment for digital discussions of plans
Supporting students' learning: The use of formative online assessments	Einig, S. (2013)	Opportunity for students to study at the desired speed (slow or fast) Students benefit from communication with professors outside of class hours
Virtual Office Hours (VOH) in accounting coursework: Leveraging technology to enhance an integrative learning environment	Lillie, R. E. and Wygal, D. E. (2011)	Effective communication of professors with students to further involve them in their own education Promote the use of information technology by students and develop their technological skills Effective interaction with customers and colleagues (communication)
Accounting students' perceptions of a virtual learning environment: Springboard or safety net?	Love, N. and Fry, N. (2006)	Choice of their preferred time, place, and style of learning The students' own building of knowledge and formulation of learning strategies Development of self-sufficient and independent learning Promotion of critical thinking and analysis skills Eradicate the boundaries of place and time

3. Research Methodology

The literature review showed that accounting education in Iran also has many potential opportunities that need to be identified to improve the quality of training in this field. The question thus arises as to what opportunities are created by online accounting education in Iran.

This study utilised qualitative content analysis. Like Chan (2020), Reyneke, and Shuttleworth (2018), after studying the existing literature, the opportunities mentioned in previous research in online accounting education were extracted, and interview questions were prepared on their basis as a thematic guide. Structured interviews were the primary instrument used. An interview is a controlled exchange of words effective for exploring people's opinions (Wiid and Diggines, 2015).

The research population consisted of accounting professors from universities across the country. In qualitative research, we are looking for an example representing the community to generalise the study's findings to the whole community. This is done to understand the phenomenon in question in the community from which the sample is selected (Helman, 2002). Therefore, qualitative research is based on purposeful sampling to select sample members to effectively understand the central phenomenon under study (Zolfagharian and Latifi, 2011). In this study, the sample was selected among Iranian accounting professors purposefully, and they were invited for an interview. The interviews were held with professors who played scientific activities in accounting education. Data were collected until reaching theoretical saturation; that is, the interviews were discontinued when no new information could be obtained from the respondents any longer. The total number of samples until reaching saturation amounted to 17. Table 2 presents the interviewed professors' frequency by the academic rank of professors, type of university and teaching experience.

RESEARCH ARTICLE

Table 2. Frequency of the Interviewed Professors by Academic Rank, Type of University and Teaching Experience

Academic Rank	Sample Size	Type of University	Sample Size	Teaching experience (Year)	Sample Size
Assistant Professor	5	State university	14	Up to 15 years	7
Associate Professor	8	Islamic Azad University	1	Up to 25 years	6
Full Professor	4	Non-profit higher education institutions	2	More than 25 years	4
Total	17	Total	17	Total	17

The selected professors were mostly associate professors of state universities with about 20 years of teaching experience. An email was sent to all professors requesting an interview to contact them. The interviews were then conducted in coordination. The interviews were conducted in a structured manner using written questions provided to the professors. The professors provided answers to the questions in writing format, audio recordings, telephone calls, or online interviews.

Coding was performed after each interview to determine the open codes. The process of recording responses and extracting code, like the Orlando (2020) research, was done in Excel (2016) software. The axial and selective codes (categories) were then extracted. Code development and data search were performed first deductively and then inductively. Deductive codes are derived from a conceptual framework, and data searches are based on a title or concept within the conceptual framework. Inductive codes are taken from transcribed data, and the data search is carried out using topics that are defined inductively (Abolma'ali, 2012).

3.1. Validity and Reliability

Like the Orlando (2020) study, the data triangulation method was used to validate the research findings. The views and opinions of professors with different scientific ranks, including professors, associate professors, assistant professors and from various universities, including State University, Islamic Azad University and Non-profit higher education institutions, were collected and analysed. In addition, data were regularly compared by a researcher other than the main interviewer, and the percent agreement index measured the coding reliability. Percent agreement is the ratio of the sections on which the two coders agree to the total number of sections rated.

$$P_A = \frac{N_A}{N_A + N_D} \times 100$$

where N_A is the total number of agreements and N_D the total number of disagreements.

$$P_A = \frac{109}{109 + 11} \times 100 = 91\%$$

A more than 75 percent agreement indicates excellent agreement (Motamedzadeh, Tavakoli and Golmohammadi, 2014).

4. Findings

Finally, 131 open codes and 25 axial codes were obtained by analysing the data, which resulted in nine categories after their classification. The first category extracted from the interviews removed restrictions and frameworks in online accounting education. This method has removed the restrictions and frameworks due to being electronic and remote. Table 3 shows the open and axial codes of this category.

DOI: 10.22067/ijaaf.2021.40774

Table 3. Removing restrictions and frameworks

Educational facilities and equipment	Time Place Space Number of students in the class Single teaching tool A large amount of information being shared Increased quantity and volume of lessons Holding classes and webinars with several professors simultaneously
Educational communication	Communication with professors abroad the country Wider interactions Online interviews Participating in various classes, conferences, and meetings Improved educational communication Learning about different cultures

The results of the interviews showed that professors have been able to use a variety of educational tools in the context of online education, such as videos, books, spreadsheets, websites, and virtual networks. Everyone has removed time and space constraints, and communication has become facilitated at a wider level. Many professors mentioned in their interviews that online education has provided them with the opportunity to invite qualified professors from other cities and countries to teach at their classes so that students can benefit from virtual interactions with them.

Table 4. New accesses

Information access	Access to student information and records Access to a variety of archives Access to the latest statistics and information Access to multiple sites and resources
Communication access	Access to a network of global communications Access to different professors Access to top education around the world Access to students from different regions and even other countries Access to remote universities for teaching Presence of learners who could not have been physically present Lifelong communication Communication with people working in the profession and different professors even in other universities Collective or dedicated voice and text comments for professors Electronic submission of content and assignments Discussion forums
Teaching tools and techniques	Using a variety of educational content and tools Access to the latest training techniques without requiring special facilities Complementing the subject of the lessons with a variety of websites, pamphlets, files, etc. Access to software and multimedia facilities
Class affairs	Ability to combine classes Creating variety in classes and participating in more courses Ability to remotely monitor the classes held Access to recorded class and course files
Others	Creation of an opportunity to address other issues

Such virtual interactions in the class environment contribute to students' interaction with new

professors and lead to wider interactions between the students themselves. In this respect, they can also become somewhat familiar with different cultures. Online accounting education removes some constraints and frameworks and facilitates new access to information, communication, teaching tools and techniques, class affairs, etc. Table 4 shows the codes and categories related to new accesses.

Some professors agreed that easier access to a variety of information resources and electronic and multimedia tools in the context of online education had enabled comprehensive education in the classroom. Accessing experienced professors and students in different regions has facilitated educational communication. This communication has taken place both in online classes and virtual networks. By forming or joining scientific groups in virtual networks, most professors can interact virtually and receive various comments and feedback from professors and students. In addition, since there is no space constraint in the online classroom, teachers can combine classes and thus hold additional and more diverse classes and have the time to address other issues. Also, some of the professors who lived in different cities have switched to virtual universities of their choice to teach their favourite courses.

Online accounting education has also created saving opportunities for professors. Table 5 presents the codes and categories extracted from the interviews in this regard.

Table 5. Savings

Cost savings	Costs of fuel and energy, water, electricity, depreciation, maintenance, food, catering, transportation, communication and related services, and printed books. Manpower for exams and student affairs, dormitories and accommodation, educational facilities; Time-opportunity costs
Other savings	Saving space Saving time

According to the interviewees, the closure of universities during the COVID-19 pandemic saved operating and non-operating costs. It has also been effective in reducing traffic and air pollution and has led to the greater preservation of natural resources and the environment. In addition, resources can be used elsewhere or to improve infrastructure from the savings generated by online education. The time saved also served as the best opportunity to deal with issues the professors did not have enough time before.

According to some professors, online education has also led to more self-reliance and autonomy among capable students. The codes and categories related to this factor are reported in Table 6.

Some interviewees stated that student-centred online education systems, such as postgraduate courses, lead to self-reliance in the students. Online education serves as the best opportunity for developing self-reliance if the students can desirably continue their education by managing their time, benefiting from their abilities, and adapting to the conditions.

According to some professors, students learn independently in online education and thus become more self-reliant. In some cases, students are even put to teach their professors. Also, because students have greater opportunities for employment during online education, they become financially self-reliant.

RESEARCH ARTICLE

Table 6. The development of self-reliance incapable students

Performing technological activities	Computerised modelling of concepts by the students Various technological activities performed by the students Unique web browsing and searches by the students
Individual learning	Educational and moral self-reliance for the students Students teaching the professors Students' self-control Individual use of complementary resources in cyberspace by the students Students watching the class videos alone Students comparing their homework and solutions individually Individual learning by the students if desired The leading role of the professor More search and research done by the students
Livelihood	Students' economic self-reliance Helping families and gaining experience by the students
Cognitive	Getting to know more about professional communities and other professors
Others	The development of abilities not previously developed in the students

One of the interviewed professors believed that online education had been a compulsion during the COVID-19 pandemic, and times of compulsions and constraints are always associated with people becoming adept at finding solutions. Some of the interviewees discussed the students' improved skills in online education, and Table 7 presents the codes and categories related to this finding.

Table 7. Students' improved skills

Multimedia skills	Strengthening technology and ICT skills Improving extracurricular skills
Professional skills	Becoming a jack of all trades Strengthening the theoretical foundations and professional skills of accounting
Other skills	Improved eloquence of speech Improved holistic approach as a skill Improved teamwork skills Improved entrepreneurial skills Improved communication skills Improved multi-level communication Improved foreign language skills Improved critical thinking skills

Almost all the professors agreed that due to the use of computers and electronic tools in online accounting education, technological skills had been strengthened in students and professors, and innovations have been witnessed in this area. Some of the interviewees believed that because of the time saved and the facilitated access to various educational opportunities, students could participate in skill-based classes and courses more easily, which will improve their extracurricular skills. One professor also believed that involving students in education and using the full range of facilities available and visual communication in non-problem-based and theoretical courses will improve their skills. Some interviewees stated that the formation of floating student teams strengthens the students' teamwork skills. Also, as students enter the classroom in a virtual environment, they more confidently present their lessons orally, give lectures more comfortably, and interact more widely with the teachers. Some of them believed that the virtualisation of communication in online education, which

has led to the formation of and membership in virtual groups, has made it easier for people to criticise and challenge various issues without fear, thus creating a basis for better communication interactions and improved critical thinking. According to the interviewees, the opportunity created for the students for time and new accesses has also contributed positively to their employment. Table 8 shows the codes and categories extracted from the interviews in this area.

Table 8. Student employment opportunities

Potential employment	Internship Students' interaction with professionals in the educational setting and getting recruited by them Promotion of professionalism among the students and helping secure employment Getting help from entrepreneurs and startups to gain more classroom experience and find employment
Actual employment	The students holding classes and earning money Having the opportunity to be employed Learning to work with scholarships Remote employment Employment during education Taking tests in the place of others!

According to the professors, the opportunity created by the reduced need for commute and not requiring physical presence in online education has helped the students become employed during their education. In the context of online education, students can offer in-service training and earn an income. In addition, online education can allow the students to increase their professional abilities and engage in various jobs that can generate income for them. The more accessible communication with entrepreneurs and experienced people in the virtual environment and benefiting from their experiences also provide employment opportunities. According to some professors, online education can serve as an opportunity to reduce the gap between the needs of the industry and university education by increasing the students' interaction with the industry and their improved professional training. Some professors believe that online accounting education can help improve education and address the existing challenges by transforming the education system. Table 9 presents the codes and categories in this area.

Table 9. Educational changes

University and educational programs	Using the generated savings for improving infrastructures, technologies, and educational resources Opportunity to enter the age of the Internet of Things Workplace simulation in education Educational revolution The effect of technology on the theoretical framework of financial reporting Reconstruction of accounting in the modern era Industry-specific bachelor of accounting Creating floating content for books and customised tutorials An opportunity for change E-learning and entering all the corners of ICT Creating a training tree Adaptation of educational standards at the international level and scientific relations with foreign countries
Quality of the education provided to the students	Designing conceptual questions for exams and learning the concepts behind the lessons The capable students' higher quality of work Statement of problems by the students

According to the interviewees, with the outbreak of COVID-19, universities inevitably continued to teach online and quickly adapted their education system to the conditions. Although the infrastructure is not yet well in place, the education system has changed so that its effects will continue to exist in the post-COVID-19 era. Professors expect to use hybrid teaching methods using face-to-face and online training side by side in the future. These changes have facilitated and increased the use of technological gadgets among professors and students and have provided ways to change the content of accounting education, facilitate access to industries to ensure industry-specific accounting education, and achieve globalisation. Some professors have also recruited PhD students to manage their master's classes and postgraduate students to manage their undergraduate classes and dubbed it the Training Tree. According to some professors, all of these measures have opened a window to the transformation of accounting education with the help of ICT.

The other opportunities provided by online education in the view of accounting professors are reported in Table 10.

Table 10. The other opportunities

Other opportunities created	Reduction in the need to be away from one's family and decreased worries Reducing the need for commute and a resultant reduction in air pollution Building a good social capital

According to some interviewees, eliminating the need for commuting to class has reduced the distance between families and students studying in other cities. The need for commuting has been eliminated for all students and professors, helping reduce traffic and air pollution.

According to one professor, the sudden introduction of online education has strengthened an extensive education network for universities, which has improved the infrastructures, skills, and educational content. In addition, society's trust in online education has developed a good social capital for universities.

From the viewpoint of some professors, there have been innovations in accounting education through the use of the facilities available for online education, and Table 11 presents the related codes and categories of this area.

Some professors have taken creative steps to better teach accounting by adding audio and video to PowerPoint™ files, putting animations and graphics in them, making complimentary training videos, and at a more advanced level, by even making educational animations in a special studio or simulating the environment. To compensate for the technical and internet-related shortcomings, one of the professors used the triple simultaneous online-offline-quasi-offline method to pursue virtual training in the best way. Using the Learning Management System (LMS) and its facilities had allowed many professors to hold periodical and weekly exams and improve the educational program's order. The use of complementary technology websites and tools has also benefited the interviewees.

Some professors paid more attention to the students' intelligence and learning style in an innovative move. Learning style refers to acquiring knowledge (Ellington and Benders, 2012). Some professors believe that a group of students learn better through online education with the help of audio and video, and some of them need face-to-face involvement and observation of the real environment to learn better. Realising this difference, professors took flexible measures to improve the quality of their teaching.

Table 11. Innovations

Professor	Benefiting from technological tools	Narrated PowerPoint™ files
		Converting booklets to PDF and using them for teaching
		Simultaneous use of websites and cyberspace
		Online-offline and quasi-offline virtual training (webinar-voice)
		Using new tools
		Drawing the flowchart relationships between topics
		Constructing dynamic movements and animated content
		Making educational video clips
		More professional training with appropriate software
		Using a light pen
		Uploading questions on the website
		Weekly quizzes at scheduled times
		Making offline animated educational materials in the studio
		Drawing shapes, forms, etc. in the form of videos
		Using YouTube videos and creating Persian subtitles
	Approaches toward the students	Giving scores to practical classroom activities
		Random questions from previous topics
		Getting random comments from the students on the content
		Paying attention to the different intelligence levels of every individual
	Benefiting from new accesses	Online participation in conferences in different regions
		Benefiting from other professors
		Training faculty members
Students	Benefiting from technological tools	PowerPoint presentation of the solved problems using sound and images
		Financial modelling by the students
		Working with MS Excel™ and MS Access™
		Posting assignments on social networks
		Presenting lessons with the help of Google Drive™
	Operational	Student participation
		Group activities
		Review of the students' assignments by other students
		Encouraging class presentations
Educational	Changing the educational behaviours	
	Using computers in financial sciences	

According to the interviewed professors, students have also been able to take innovative actions with the help of technological instruments or with the cooperation of the professors. Also, online

RESEARCH ARTICLE

education has underscored the use of computers in financial sciences and the integration of IT with accounting education.

By putting together the axial codes and categories, the conceptual model of the research can be drawn as follows.

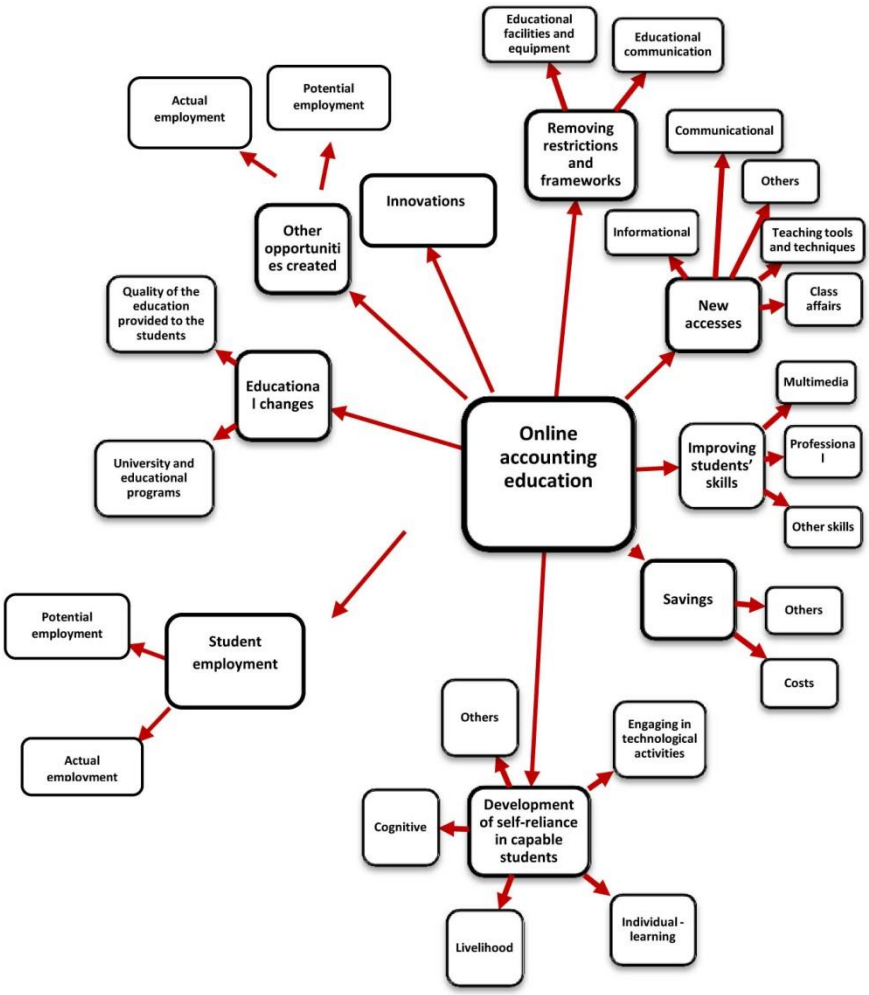


Figure 1. The conceptual model of opportunities and innovations provided by online accounting education in Iran

5. Conclusion and Recommendations

There has been a need to change accounting education since the advent of new technologies due to the complexity of businesses and the gap between universities and industries. With the initiation of online education to prevent the spread of COVID-19, universities and academics in Iran have faced limitations such as technical and infrastructure issues, students' poor attention and focus in virtual classes, difficulty explaining basic accounting concepts, some students' or professors' lack of access to computers, tablets or smartphones, and reduced social interaction and poor cognition and learning. These restrictions, however, have not blocked the path to education.

Universities have used their IT teams to set up online education systems with university officials' financial and spiritual support and worked to improve infrastructures that had many weaknesses from the beginning. Giving training to professors and students was also one of the good and timely

measures different universities took to prepare for online education. Professors and students have also learnt to adapt to the circumstances. Over time, despite its immaturity and shortcomings, online education established its rightful position in universities. The sensibility and cooperation of universities and academics have led to the removal of many obstacles and challenges and the creation of valuable social capital for universities to benefit from it even in the future. This social capital was the creation of extensive educational networks, the strengthening of technological infrastructures and skills, the preparation of technological educational content, and the acquaintance of academics with online education systems and their position and applications, and although accounting education already needed this transformation, the online method had not yet established its position in this field.

After using online education, academics' concern for unforeseen educational issues was greatly reduced, and many professors became creative to take advantage of the opportunity and took measures that were not easily possible during in-person education before. Taking into account the fact that practical accounting training in the workplace and professional learning along with university education are requirements of accounting education, many professors used the opportunity bestowed by the removal of time and space constraints, invited experts to teach in their online classes and acquainted the students with these experts and with the details of the practice of accounting. Some professors also managed to improve the quality of accounting education using technological tools and simulate the work environment by preparing videos and animations.

Inviting specialist accounting professors from other universities for short lectures in addition to each professor's own teaching was another step taken by some professors. In this situation, students who sought to benefit from education found many opportunities to meet professional accountants and professors from other universities and could thus become part of a wider professional environment, which, for some of them, led to better educational goal-setting, better learning, and even employment opportunities.

The interviews showed that online education has led to the removal of some restrictions and set frameworks due to its virtual nature and flexibility. In line with the present findings, Love and Fry (2006), Lillie and Wygal (2011), Arkorful and Abaidoo (2015), Bayerlein (2015), and Braun et al. (2020) also discussed how many educational limitations were removed in the context of the online method in their studies.

Online education has provided new access from the perspective of accounting professors. This category was also discussed by Guthrie, Burritt and Evans (2013) and Arkorful and Abaidoo (2015). The savings generated from online education were another topic extracted from the interviews. Similarly, Arkorful and Abaidoo (2015) and Montgomery (2018) also confirmed the savings generated by online education.

According to the interviewed accounting professors, students' self-reliance was another achievement of online education. Studies by Love and Fry (2006), Humphrey and Beard (2014), and Arkorful and Abaidoo (2015) also indicated students' independence and self-reliance in online education. Students' enhanced skills in the context of online education, which was inferred from the interviews with the professors, has also been supported in the studies by Love and Fry (2006), Lillie and Vigal (2011), Lawless (2014), Bayerlein (2015), Reyneke and Shuttleworth (2018), and Grabinski et al. (2020). The creation of employment opportunities for students due to the opportunities created in online education was another category extracted from the interviews with accounting professors. Guthrie, Burritt and Evans (2013), Arkorful and Abaidoo (2015), Braun et al. (2020), and Malan (2020) also suggested how students had attained opportunities for employment by this means. The educational changes made by the introduction of online education in accounting was another category extracted from the interviews with the professors, which was also mentioned by

Guthrie, Burritt and Evans (2013), Humphrey and Beard (2014), Arkorful and Abaidoo (2015), Chan (2020), and Braun et al. (2020). Other opportunities mentioned by Arkorful and Abaidoo (2015), Malan (2020), and Grabinski et al. (2020) were all in line with the 'others' category of opportunities created through online education in this study. All the categories extracted from the interviews with Iranian accounting professors were mentioned earlier by Sangster, Stoner and Flood (2020), who studied accounting education during the COVID-19 pandemic in other universities worldwide.

In some researches conducted by researchers from other countries, opportunities in online accounting education were introduced that have not been mentioned in the present study by Iranian accounting professors. For example, the opportunity for interaction suggested by Malan (2020) was not found in interviews with professors. According to the opinions received from some Iranian professors, online education, due to the limitation of face-to-face interactions, limits the opportunity for interaction and is considered a challenge. Grabinski et al. (2020) Also presented the opportunity to create added value for students in online education, which is not provided in Iran. Such an opportunity arises when students can develop the additional skills needed. According to the interviews conducted, it seems that since the online education infrastructure in Iran is not suitable, and people are unfamiliar with the culture of distance education, Although students have had the opportunity to create value and increase their skills in various dimensions, they have often not been able to take full advantage of these opportunities and have not been provided with such an opportunity. Another opportunity that has not been provided from the perspective of Iranian accounting professors is the opportunity to apply the case study method in accounting education. According to Reyneke and Shuttleworth (2018), since the case study method can comprehensively enhance students' skills, it is better to use the case study method in the online education environment, where there is an opportunity to discuss and access various resources in the undergraduate and graduate courses in accounting. This educational method in Iran has not yet found its place. Due to the lack of complete familiarity of professors and students with this method, the opportunity to use it has been ignored despite the provision of new accesses in the online environment. Opportunities to help address the shortage of labour in universities and comprehensive learning opportunities for students are also among the causes that Arkorful and Abadioo (2015) mentioned in their research as opportunities provided in online accounting education, which according to the results of interviews conducted in Iran, such no opportunities were mentioned. Iranian universities usually have a sufficient workforce. Online education has made it possible to use the services of specialists without time and space restrictions. Still, on the other hand, the workload of some workforce has been reduced by the closure of universities, or even some of them have become unemployed. Comprehensive learning is also provided when all facilities and infrastructure are available and professors and students are sufficiently prepared and knowledgeable for proper teaching. However, students do not have comprehensive learning due to their lack of provision.

Increasing the use of an in-depth study strategy by students was an opportunity mentioned in the Bayerlein (2015) study, but the results of the interviews did not show it. This strategy is well done when the learning environment is student-centred, outside the traditional classroom environment, and provides the right conditions (Bayerlein, 2015). Although online education offers the possibility of holding classes outside the traditional environment, accounting education in Iran is often teacher-centred. Holding classes online is similar to traditional classes, and the right conditions are not provided; the use of deep study strategy has not been found its place well.

Another opportunity Guthrie, Burritt and Evans (2013) in online education is real-time dissemination of accounting research findings. According to the interviews, such an opportunity is

not mentioned because there is no difference in the speed of the research process, the compilation of articles, and their publication.

Based on the codings done, despite the opportunities that were identified, it was found that some innovations were also used by accounting professors, which were coded separately, and the relevant results were extracted.

According to research, universities and higher education institutes are recommended to recognise and use online education and other educational methods to improve the quality of accounting education. Iranian accounting professors generally favour applying this method, especially in postgraduate programs. Utilising the opportunities presented in this research can help use the case study method and thus comprehensive and inclusive learning of students. Students can also enhance multiple skills and add value to their learning by recognising and taking advantage of opportunities.

Future researchers are also advised to use quantitative methods to assess how much other accounting professors agree about the opportunities and innovations identified in this study. Using a qualitative method to examine the opportunities created by online education from the students' point of view and finding the limitations and challenges of online accounting education from the perspective of professors and students are other recommendations for future research.

Endnote

[1]. International Federation of Accountants Company

References

1. Abolma'ali, Kh. (2012). *Qualitative research: from theory to practice*. Science publication, first edition.
2. Arkorful, V. and Abaidoo, N. (2015). The role of e-learning, advantages and disadvantages of its adoption in higher education. *International Journal of Instructional Technology and Distance Learning*, 12(1), pp. 29-42. https://www.itdl.org/Journal/Jan_15/Jan15.pdf#page=33
3. Bayerlein, L. (2015). Curriculum innovation in undergraduate accounting degree programmes through "virtual internships". *Education+ Training*, 57(6), pp. 673-684. https://doi.org/10.1108/ET-09-2014-0110
4. Braun, R. L., Boldt, M. N., Mauldin, S. and Viosca, C. (2020). Accounting graduates with both online and traditional coursework: impact on hiring decisions. *Accounting Education*, 29(4), pp. 340-355. https://doi.org/10.1080/09639284.2020.1788613
5. Chan, R.Y. (2020). Studying Coronavirus (COVID-19) and Global Higher Education: Evidence for Future Research and Practice. *Available at SSRN 3622751*. https://ssrn.com/abstract=3622751
6. Coetzee, S.A., Schmulian, A. and Coetzee, R. (2018). Web conferencing-based tutorials: student perceptions thereof and the effect on academic performance in accounting education. *Accounting Education*, 27(5), pp. 531-546. https://doi.org/10.1080/09639284.2017.1417876
7. Einig, S. (2013). Supporting students' learning: The use of formative online assessments. *Accounting Education*, 22(5), pp. 425-444. https://doi.org/10.1080/09639284.2013.803868
8. Ellington, Sh. And Benders, D. S. (2012). *Learning style and it's importance in education*.pp.1-15. https://www.researchgate.net/publication/256022625_Learning_Style_and_it's_importance_in_Education
9. Etemadi, H. and Fakhari, H. (2004). Explaining the needs and priorities of accounting research to provide a model for aligning research, training and practice. *Accounting and Auditing*

Reviews, 11(35), pp. 3-27. https://doi.org/20.1001.1.26458020.1383.11.1.1.1
10. Grabinski, K., Kedzior, M., Krasodomska, J. and Herdan, A. (2020). Embedding e-Learning in accounting modules: The educators' perspective. *Education Sciences*, 10(4), pp. 1-19.
11. https://doi.org/10.3390/educsci10040097
12. Guthrie, J., Burritt, R. O. G. E. R. and Evans, E. (2013). Challenges for accounting and business education: blending online and traditional universities in a MOOC environment (Doctoral dissertation, Institute of Chartered Accountants Australia; Centre for Accounting, Governance and Sustainability, University of South Australia). http://www.charteredaccountants.com.au/News-Media/Reports-and-insights/Academic-leadership-series
13. Helman, N. (2002). Research method in psychology (3rd edition), New York: Houghton Blackwell Science. https://www.amazon.com/Research-Methods-Psychology-Gary-Heiman/dp/0618170286
14. Humphrey, R. L. and Beard, D. F. (2014). Faculty perceptions of online homework software in accounting education. *Journal of Accounting Education*, 32(3), pp.238-258 https://doi.org/10.1016/j.jaccedu.2014.06.001
15. IFAC. (2010). Handbook of International Education Pronouncements. https://www.iaesb.org/publications/handbook-international-education-pronouncements-2010-edition-0
16. Jones, M. A. (2016). A study of satisfaction with online learning in workplace training. (Doctoral dissertation, Walden University.USA. https://www.semanticscholar.org/paper/A-Study-of-Satisfaction-With-Online-Learning-in-Jones/3ccc095a33cae095fb58c92b8e3c09c7049e71e6
17. Lawless, E. (2014). Facing the Facts: opportunities and challenges of online learning. IB Conference of Americas, Washington. https://www.ibo.org/contentassets/60d1e68eafc7437faf033f8d9f5c6d6d/saturday-facing-facts-oppurtunities-challenges-online-learning-edward-lawless.pdf
18. Lillie, R. E. and Wygal, D. E. (2011). Virtual Office Hours (VOH) in accounting coursework: Leveraging technology to enhance an integrative learning environment. *Journal of accounting education*, 29(1), pp. 1-13. https://doi.org/10.1016/j.jaccedu.2011.10.002
19. Love, N. and Fry, N. (2006). Accounting students' perceptions of a virtual learning environment: Springboard or safety net?. *Accounting Education: an international journal*, 15(2), pp. 151-166. https://doi.org/10.1080/06939280600609201
20. Malan, M. (2020). Engaging students in a fully online accounting degree: an action research study. *Accounting Education*, 29(4), pp. 321-339. https://doi.org/10.1080/09639284.2020.1787855
21. Mansuri, Sh. (2012). The Necessity of Using Technology in Accounting Education. *Accountant*, 1(241), 38-41. (In Persian)
22. Montgomery, E. (2018). Perception of Online Accounting Graduates: State of Florida Hiring Managers' Perspectives [Doctoral dissertation, School of Business in Partial Fulfillment; Northcentral University].
23. Motamedzadeh, M., Tavakoli, M. and Golmohammadi, R. (2014). Reliability Assessment of Washington States Ergonomic Checklist Using Agreement Method between the Observers of Two Groups of Ergonomic Specialist and Non-specialist. *Journal of Occupational Hygiene Engineering*, 1(2), pp. 67-73. (in Persian). http://johe.umsha.ac.ir/article-1-51-en.html

24. Orlando, L. M. (2020). Experiences of Online Faculty with Best Practice Methods to Improve Performance and Retention of Accounting Students: A Multiple Case Study (Doctoral dissertation, Northcentral University). https://www.proquest.com/openview/1f015514c9a2c1047ee26cca85963915/1?pq-origsite=gscholar&cbl=18750&diss=y
25. Rahmouni, N. (2020). Seize the Opportunities that Online Education Offers, says a Lifelong Learner. https://www.al-fanarmedia.org/2020/07/seize-the-opportunities-that-online-education-offers-says-a-lifelong-learner/
26. Rahnama Roodposhti, F., Vakili Fard, H. R. and Raeszadeh, S. M. R. (2009). Determining the Priorities and Educational Needs of Accounting Courses Content from the Perspective of Students, University Professors, and Professionals Providing an Effective Model. Accounting Researches, 1(4), pp. 78-97. https://www.sid.ir/fa/Journal/ViewPaper.aspx?id=137425
27. Reyneke, Y. and Shuttleworth, C. C. (2018). Accounting education in an open distance learning environment: Case studies for pervasive skills enhancement. *Turkish Online Journal of Distance Education*, 19(3), pp. 140-155. https://doi.org/10.17718/tojde.445115
28. Sangster, A., Stoner, G. and Flood, B. (2020). Insights into accounting education in a COVID-19 world. *Accounting Education*, 29(5), pp. 431-562.https://doi.org/10.1080/09639284.2020.1808487
29. Wiid, J. and Diggines, C. (2015). *Marketing research*. 3rd edition. Cape Town: Juta. https://www.loot.co.za/product/jan-wiid-marketing-research/nkvt-3483-g060
30. Wilson, R. M. (2014). The Routledge companion to accounting education. 1st edition. Routledge. https://www.amazon.com/Routledge-Companion-Accounting-Companions-Management/dp/0415697336
31. Zofen, Sh. (2010). Application of new technologies in education. Samt Publishing. (in Persian). http://samt.ac.ir/en/book/2321/applications-of-new-technologies-in-teaching
32. Zolfagharian, M. R. and Latifi, M. (2011). *Foundation data theorising with NVivo 8 software*, Tehran, Imam Sadegh (AS) University Press. Tehran. Iran. (in Persian). https://www.adinehbook.com/gp/product/6002140791

How to cite this article:
Tabatabaeian, M., Mashayekh, S., Rahmanian Koushkaki, A. (2021). Online Accounting Education: Opportunities and Innovations. Iranian Journal of Accounting, Auditing and Finance, 5(4), 1-20. doi: 10.22067/ijaaf.2021.40774
URL: https://ijaaf.um.ac.ir/article_40774.html

Ferdowsi University of Mashhad

Iranian Journal of
Accounting, Auditing & Finance

Received: 2021-10-06
Accepted after revision: 2021-11-26
Published online: 2021-12-24

RESEARCH ARTICLE

DOI: 10.22067/ijaaf.2021.40775

Designing a Structural-interpretive Model of Information Disclosure Factors related to Sustainable Development Accounting

Mohammadreza Abbasi Astamal

Department of Accounting, Varzeghan Branch, Islamic Azad University, Varzeghan, Iran.

Mehdi Zeynali

Department of Accounting, Tabriz Branch, Islamic Azad University, Tabriz, Iran.

Abstract

The current study aims to design a structural-interpretive model for disclosing information related to sustainable development accounting in 2020-2021. Qualitative data were obtained through the study of research and credible sources in the field of sustainable development accounting with content analysis approach and in the form of 4 dimensions (environmental, social factors, economic factors and leadership) in the form of 12 variables using fuzzy Delphi method and matrix questionnaire to determine Pairs of variables were compiled and provided to experts. The study's statistical population includes 25 experts in sustainable development accounting. The data obtained from the questionnaire were analysed using a structural interpretive model and drawn at six levels in an interactive network. Also, these variables' influence and degree of dependence on each other in the influence-dependence power matrix were examined. According to the output of the interpretive structural model, the variables of products and services provided and corporate governance are level one or the most basic elements of the model and the variables of a strategic approach to the environment and promotion of moral awareness as the level six variable and the most influential model variable. This study indicates that by disclosing information related to sustainable development accounting factors, managers and policymakers can provide more transparent information to stakeholders by formulating appropriate policies and standards in sustainable development accounting, which leads to social welfare and environmental protection. For future generations, capital market growth and increasing the quality of reporting will ultimately lead to the sustainable performance of companies in the long run.

Keywords: Accounting, Sustainable Development, Structural-interpretive Model.

Corresponding author: Mohammadreza Abbasi Astamal
Email: *reza_abbasi28@yahoo.com*

Number of Figures: 2
Number of Tables: 10
Number of References: 34
Pages: 18

https://ijaaf.um.ac.ir
E-Issn: 2717-4131

RESEARCH ARTICLE

1. Introduction

The popularity of sustainable development accounting has increased dramatically in the last two decades. So many companies are choosing new methods and ways to disclose their financial information about the core, social activities, the results of their effects, and so on. The present age is when customers and individuals in society expect companies and organisations to be responsible and consider future generations in their activities and operations. The importance of organisations to future generations in carrying out their activities and resource consumption is a positive step towards achieving sustainable development and demonstrates the organisation's clear accountability to stakeholders, which requires the development of organisational boundaries and reporting to respond appropriately and information transparency to the spectrum. It has a wide range of stakeholders. Sustainable accounting expands the accounting boundaries to consider the environmental, social, and economic costs and benefits that fall to a wide range of different stakeholders in the organisation. Therefore, the distinguishing point between sustainable accounting and conventional accounting is related to the specific costs and benefits that occur directly in an organisation in economic, social and environmental dimensions. The concept of sustainable development accounting requires a connection to sustainability management and sustainability reporting (Bebbington and Unerman, 2018). A sustainability report should provide a balanced and logical presentation of the reporting organisation's sustainability performance (including positive and negative issues). Thus, sustainability reporting is vital for managing change over a sustainable global economy. Sustainability reports may be used to optimise and evaluate sustainability performance to laws, norms, codes, performance standards, and voluntary initiatives, showing how an organisation affects stakeholders and meets expectations in sustainable development. , And compare performance in an organisation and between different organisations over time (Braam and Peeters, 2018). The sustainability report also reflects the organisation's values and governance model and the relationship between the organisation's strategies and its commitment to a sustainable global economy. It also has a theoretical framework, and various theories such as political economy theory, legitimacy theory, stakeholder theory and organisational theory explain the company's motivation to disclose sustainability information. Indicators and standards have been developed to measure corporate sustainability. The guidelines of the World Reporting Organization, the International Integration Reporting Committee and the Sustainability Accounting Standards Board have greatly assisted organisations in preparing sustainability reports. Therefore, with the importance of sustainable development accounting issues in recent years, much research has been done in this field worldwide. Despite the growing importance of voluntary disclosures by companies on sustainability reporting issues, this issue has not been properly addressed in Iran (Abbasi Astamal and Zeynali, 2021). There is no proper understanding of the dimensions of accounting for sustainable development of companies in our country and to explain the operational concept of accounting information disclosure with the approach of sustainable development and understanding its nature, type and content in Iranian companies; no comprehensive research has been done. In Iran, as a developing country with a sustainable development approach based on the Sassanid law, the general policies of the vision document and the Fifth Economic and Social Development Plan and the privatisation process seem necessary to be based on a research study and its results and helped to understand and develop the disclosure of sustainable development accounting information in Iranian companies. Therefore, this study aims to create a reliable and scientific model that considers all aspects, has all the required information in its published report and has positive and useful functions. Therefore, the present study intends to provide a structural-interpretive model for disclosure factors related to sustainable development accounting.

RESEARCH ARTICLE

2. Theoretical Foundations and Research Background

The concept of sustainable development accounting is practically related to a period in the last 40 years, the process and foundation of which is due to changes in accounting and attention to the concepts and roots of accounting as a concept much broader than the financial dimension. Its infancy has been raised over the past few years. This change and development reflect two independent lines of thought that in the first line expresses a philosophical view of the process, and the role of accountability of organisations and how they relate to sustainable development and states that these factors are among the factors that move organisations Stability side are effective. Accordingly, accounting concepts are designed on a completely new accounting system and effectively promote sustainability strategies in this approach. The second line is to pay attention to the management perspective about various conditions and effective tools for sustainability. In this report, the development of an organisation or its cost may be identified as standard financial costs or in management accounting as controllable costs (Rezapour, 2014). The concept of sustainable accounting in an international environment should be examined and measured with a wide range of experience, thinking, and the attitude of creating growth and development in society, which is a tool for financial accounting that organisations should use. Because to become a dynamic and economically sustainable society, pay attention to the existence and role of financial information recognised in all professional societies and shows how this information can lead to the strengthening and growth of society's social and environmental level. However, there is no clear reporting framework for the content of a company's financial statements, and it can be largely determined by determinants, including financial reporting standards, guidelines, and regulations. But this will lead to companies having more flexibility in preparing and presenting financial statements. But preparing and presenting reports requires providing information according to the general goals of the company and interacting with the audience in a way that promotes the exchange of ideas and communication (Karami and Salehi, 2019). Therefore, an increasing number of companies and organisations want to sustain their operations and participate in sustainable development, and sustainability reporting can help organisations to measure and inform their economic, environmental, and social and governance performance. Sustainability is the ability to sustain something long or indefinitely based on performance in these four key areas. Systematic sustainability reporting helps organisations measure the impacts they create or experience, set goals, and manage change. Sustainability reporting is a key platform for reporting performance and performance effects, both positive and negative. (Manes-Rossi et al., 2018). Sustainability reporting is the process of measuring, disclosing, and responding to internal and external stakeholders for an organisation's performance toward sustainable development goals. Sustainability reporting is a broad term similar to other terms such as corporate social responsibility used to describe economic, environmental and social impacts. A sustainability report should provide a balanced and logical presentation of the reporting organisation's sustainability performance (including both positive and negative issues). Thus, sustainability reporting is vital for managing change over a sustainable global economy. A resource that combines long-term profitability with ethical behaviour, social justice, and environmental care. Sustainability reports may be used to optimise and evaluate sustainability performance concerning laws, norms, codes, performance standards, and voluntary initiatives, showing how an organisation affects stakeholders and meets expectations in sustainable development. , And compare performance in an organisation and between different organisations over time (Abbasi Astamal et al., 2021). An effective sustainability reporting cycle; should benefit all reporting organisations. Internal benefits for companies and organisations can include the following: Increased understanding of risks and

opportunities; Emphasis on the relationship between financial and non-financial performance; Apply long-term management of business strategy, policy and plans; Facilitate processes, reduce costs and improve efficiency; Optimisation and evaluation of sustainability performance according to rules, norms, codes, performance standards and voluntary initiatives; Comparing performance internally, inter-organizationally and between different sectors of the industry. However, the external benefits of sustainability reporting include improved brand reputation and loyalty; the ability of stakeholders to understand the true value of the organisation and its tangible and intangible assets; Demonstrate how the organisation is impacted and impacted based on expectations about sustainable development. The guidelines of the World Reporting Organization, the International Integration Reporting Committee and the Sustainability Accounting Standards Board have greatly assisted organisations in preparing sustainability reports. Indicators of the World Reporting Organization are now very popular and used as disclosure indicators in various studies. But these indicators are general indicators of sustainable development that should be applied to local accounting. Accordingly, the literature and research conducted in this field were reviewed.

Abbasi Astamal et al. (2021) examined explaining and prioritising information disclosure factors related to sustainable development accounting with a fuzzy approach. The results showed that among the main criteria, environmental dimension with weight 0.405 in rank 1, The social dimension with a weight of 0.296 was ranked 2nd, the economic dimension with a weight of 0.186 was ranked 3rd, and the leadership dimension with a weight of 0.113 was ranked 4th. Finally, based on the calculated final weight, the strategic approach to environmental impacts with a weight of 0.955 in the first place, management and efficiency in consumption in the second place, social development and humanity in the third place and management of waste and waste came in fourth.

Giang et al. (2020) conducted an empirical study in Vietnam which shows factors such as managers' perceptions of costs and benefits, environmental change, production scale characteristics, and corporate business activities, pressures to announce sustainable environmental information and reports have a significant impact on the development of environmental accounting for sustainable development.

Akhtarshenas, Khodamipour and Pourheidari (2020) developed a Model of effective factors on corporate sustainability in Iran. The results showed that 4 dimensions including company characteristics, managerial factors, market factors and macro factors, 9 components including; structural features, performance characteristics, Individual-level, organisational level, capital market, business factors, economic factors, social and political factors and 60 indicators are practical on corporate stability. In addition to confirming many of the factors identified in previous research, new factors such as community culture, governing policy, adherence to ethics, legal requirements, corporate social reputation, intellectual capital, and product market competition have been identified as Effective factors for corporate sustainability.

Abdi, Kordestani and Rezazadeh (2020) examined that the findings showed that the Sustainability Reporting stimulus is classified into 5 main groups and 24 indicators. Among the stimuli, the stimuli of environmental requirements, corporate governance characteristics and structural characteristics of the company are the most important for experts, and also, the ranking of indicators showed that the indicators of legal requirements, independence of board members and profitability have the highest rank.

Abdi, Kordestani, and Rezazade (2019) argued that corporate sustainability reporting could have consequences such as increasing social trust, improving the quality of human life, preserving the environment for future generations, growing capital markets and increasing the quality of reporting. This study's findings can help develop this type of report in Iran.

RESEARCH ARTICLE

Jafari Jam, Ali Asgari, and Zarei (2019) show that increasing the disclosure of corporate sustainability information leads to improved financial performance and value.

Saunila et al. (2019) showed that smart technologies directly affect the economic dimension of corporate sustainability but do not directly affect the environmental and social dimensions.

Naciti (2019) showed that in companies with more diversity in the board and a dichotomy between the role of chairman and CEO, corporate sustainability performance is higher. The findings also showed a significant negative relationship between the independence of board members and corporate sustainability performance. Manes-Rossi et al. (2018) examined the effective factors on sustainability reporting in European countries. The results showed that companies have shown an increasing interest in the issue of sustainability reporting and placed great emphasis on the three elements of the environment, staff and community. Bravo and Reguera - Alvarado (2019) showed that the presence of women in the board improves the quality of disclosure of sustainable development information; However, no significant correlation was observed between the workload of the board and the size of the board and the quality of disclosure of sustainable development information. Braam and Peeters (2018) showed that in countries that care more about stakeholders, companies have better performance and accounting processes in these companies are more transparent it has much more. In addition, it was found that the specific characteristics of each company play a role in determining the accounting contribution to sustainable development. Kim, Kim, and Qian (2018) show that while the intensity of competition is high, social responsibility significantly improves financial performance; In contrast, when market competition is low, irresponsible behaviours have a greater impact on improving financial performance. Ahmed (2018) addressed the quality of sustainability reporting in Bangladesh and found that sustainability reporting information did not meet GRA standards. Yabloi Khumslui, Izadi Nia, and Arabsalehi (2018) discussed the effect of disclosed stability indicators on earnings quality. The amount of disclosed sustainability indicators has a comprehensive positive and significant effect on earnings quality. Khozin et al. (2018) showed that the percentage of shares of the largest shareholder and government shares does not affect the stability reporting of companies listed on the Tehran Stock Exchange. Masoumi, Saleh Nejad, and Zabihi (2018) showed that company size, liquidity, institutional shareholders and duality of CEO duties have no significant effect on sustainability reporting companies. Namazi, Rajab Dori, and Rousta (2018) developed a model for the sustainable development of accounting professional ethics. The prepared model, which is based on the content of articles, consists of 4 structures and 69 factors. The priority of each structure is individual structure, social structure. , Is an economic-organisational structure and an environmental structure. Fakhari, Malekian and Jafaei (2018) explained a model for ranking companies in terms of environmental and social reporting and corporate governance (ESG) by hierarchical analysis, the findings of which show that the average score of disclosure of "ESG" G "in Iran is about 29%. Disclosure of corporate governance information in the reports of Iranian companies has had an upward trend during the studied years, while the disclosure of environmental and social information and finally the disclosure of "ESG" has had a changing trend. Jizi. (2017) examined the factors Effective the disclosure of sustainable development accounting information that with increasing the level of board independence, the quality of disclosure of sustainable development accounting information improves, and this factor has a direct impact on improving the company's image among investors. And as the number of women on the board increases, so does the willingness of companies to disclose sustainable development accounting information. Afzalianmand and Abdullahzadeh (2016) showed a positive and significant correlation between sustainable development accounting and environmental management accounting and maintaining the sustainable development of the

industrial sector. Huang, Wu, and Yan (2015) identified indicators and criteria for sustainable development. These researchers identified economic considerations, ecological considerations, green city index, and economic factors as sustainable urban development indicators. Akbas (2014) showed that the size of the company and the type of industry are positively related to the amount of environmental disclosure, while profitability is negatively related. Leverage and life variables are not statistically related to the amount of disclosure. Aktas, Kayalidere, and Kargin (2013) found that the disclosure of organisational profiles, including the dimensions of corporate governance and management attitudes, is mainly present in companies' annual reports. But indicators of sustainable performance in economic, social and environmental dimensions were not observed in these reports.

3. Research Methodology

The present research is applied in terms of purpose; a mixed method has been used in the research method. The hybrid method used is of the sequential-exploratory hybrid type. Combined research emphasises the collection, analysis and combination of two types of qualitative and quantitative data in a single research or a set of researches divided into three categories: intertwined, descriptive and exploratory (Zareian, Heyrani and Moeinadin, 2020). In the first stage, the disclosure variables of sustainable development accounting information were identified using the qualitative content analysis method. The data collection tool in the qualitative part is phishing. The statistical population of this research in the qualitative section includes all studies conducted to disclose sustainable development accounting information. According to the research strategy, theoretical sampling has been used in the qualitative part. The data collection tool in the quantitative section is the Delphi questionnaire, confirmatory factor analysis. Compared to traditional surveys, where the focus is on generalisation among a randomly sampled population, Delphi method experts are not randomly selected. Still, experts are selected based on their knowledge in a specific area related to the subject under study. Given the above, the sampling and snowball methods were slightly unlikely. Thus, the views of 25 experts in the field of sustainable development accounting; Having sufficient expertise and experience, deep knowledge of the research topic and breadth of views related to the research field, were used as panel members whose opinions and views were collected and quantified for the selection of research variables as well as for structural-interpretive modelling.

3.1. Structural-interpretive Modelling

Structural-interpretive modelling is a suitable model for analysing the effect of an element on other elements. This methodology is the tool by which groups can overcome complexity between elements.

The steps of implementing the ISM technique are as follows:

1. Determine variables
2. Formation of structural self-interaction matrix

The following symbols are used to determine the relationships between elements:

V: Variable I (row) affects variable J (column).
A: Variable J (column) affects variable I (row).
X: The variables I and J help to reach each other.
O: The variables I and J are not related.

3. Formation of the received matrix

The matrix can be reached by converting the SSIM matrix relationship symbols to zeros and ones.

4. Match the achievement matrix
5. Determining relationships and grading

DOI: 10.22067/ijaaf.2021.40775

RESEARCH ARTICLE

Table 1. Descriptive statistics of experts

Row	Gender	Field of study	degree of education	Work experience	Main job	Number of respondents
1	Man	Management and Finance	PhD	10 to 15 years	science Committee	2
2	Man	Management and Finance	MSc	Over 15 years	Capital Market	1
3	Man	Management and Finance	MSc	10 to 15 years	financial manager	1
4	Man	Accounting and auditing	P.H.D	Over 15	science Committee	9
5	Female	Accounting and auditing	P.H.D	Over 15	science Committee	2
6	Man	Accounting and auditing	MSc	10 to 15 years	Independent auditor	3
7	Man	Accounting and auditing	MSc	Over 15	Head of Accounting	2
8	Man	Accounting and auditing	P.H.D	Over 15	Independent auditor	3
9	Man	Financial Economics	P.H.D	Over 15 years	financial manager	1
10	Man	Other	P.H.D	Over 15	Researcher	1

In this step, the output set (access set / received set) and the input set (prerequisite set / preliminary set) for each variable is extracted from the access matrix. The row corresponding to that component is examined in the access matrix to determine the output set for each component. And to determine the input variables, the column of each variable must be checked.

Variables that have the number 1 in the corresponding row from the output set of that variable and variables that have the number 1 in the column of a variable form the input set.

6. Drawing a model (diagram)

7. Analysis (Mick Mac) (Razini, Azar and Mohammadi, 2014).

4. Research Findings

4.1. Fuzzy Delphi Method

The fuzzy Delphi technique has been used to identify the evaluation indicators of disclosure of sustainable accounting information. To fuzzy the experts' point of view, the five-degree spectrum according to Figure 2 has been used.

Table 2. Five-degree fuzzy spectrum for index evaluation

Linguistic variable	Fuzzy value	Triangular fuzzy equivalent
Very unimportant	1	(0, 0, .25)
Very unimportant Up to Unimportant	2	(0, .25, .5)
Unimportant	3	(.25, .5, .75)
unimportant Up to Medium importance	4	(.5, .75, 1)
medium	5	(.75, 1, 1)

In the next step, the fuzzy mean of the individual scores must be calculated. The fuzzy mean of the triangular fuzzy number will be calculated as follows:

Relationship 1

$$\tilde{F}_{AVE} = (\mathrm{L}, \mathrm{M}, \mathrm{U}) = \frac{\sum l_i^k}{n}, \frac{\sum m_i^k}{n}, \frac{\sum u_k^i}{n}$$

In this regard, the triangular fuzzy number $\tilde{\mathrm{f}}_i = \left(l_i^k, m_i^k, u_i^k\right)$ the fuzzy equivalent is the k's expert

view of the i criterion. Eventually, de-fuzzing will take place. For de-fuzzy, the surface centre method is used as follows:

Relationship 1

$$DF_{ij} = \frac{[(u_{ij}-l_{ij})+(m_{ij}-l_{ij})]}{3} + l_{ij}$$

In this study, the tolerance threshold is considered 0.7. Therefore, the de-fuzzy value greater than 0.7 is acceptable, and any indicator with a score above 0.7 is approved (Wu and Fang, 2011).

Table 3. Summary of fuzzy Delphi results, factor analysis, validity and reliability

Agents	Variables	Factor load	Test statistics	AVE	CR	Fuzzy average	Definite amount
Social dimension	Q1	0.74	12.17	0.532	0.948	(0.616,0.804,0.938)	0.786
	Q2	0.72	9.29			(0.58.0.772.0.918)	0.757
	Q3	0.69	10.87			(0.616,0.804,0.938)	0.786
Environmental dimension	Q4	0.68	10.66	0.538	0.920	(0.572,0.766,0.904)	0.747
	Q5	0.69	13.51			(0.552.0.754.0.896)	0.734
	Q6	0.73	9.97			(0.562,0.758,0.904)	0.741
Economic dimension	Q7	0.80	10.18	0.533	0.941	(0.594,0.784,0.912)	0.763
	Q8	0.67	8.68			(0.75,0.9,1)	0.883
	Q9	0.71	9.82			(0.71,0,876,0,984)	0.857
Leadership dimension	Q10	0.81	4.01	0.526	0.935	(0.592,0.774,0.92)	0.762
	Q11	0.70	5.37			(0.644,0.826,0.952)	0.807
	Q12	0.74	4.14			(0.7,0.87,0.98)	0.850

Source: Researcher Calculations

The value of the combined reliability of all variables is greater than 0.7, so the reliability is confirmed. The value of AVE is also greater than the threshold of 0.5 in all cases, so convergent validity and combined reliability are established.

Table 4. Factors of disclosure of sustainable development accounting information

Main dimensions	Category
The environment	1. Strategic approach to the environment 2. Energy consumption accounting 3. Investment management and environmental financing
Social factors	4. Corporate social accounting for the community 5. Company social accounting for employees 6. Company social accounting for customers
Economic factors	7. Stable financial performance 8. Products and services provided 9. Risk management
Leadership	10. Orbital law 11. Corporate governance 12. Promoting awareness of accounting ethics

4.2. Structural-interpretive Analysis

4.2.1. Determine Variables

The studied variables present experts approved the model using the fuzzy Delphi technique. These variables are shown in Table 5.

Table 5. Research variables

Variables	Code
A strategic approach to the environment	1
Energy consumption accounting	2
Investment management and environmental financing	3
Corporate social accounting for the community	4
Company social accounting for employees	5
Company social accounting for customers	6
Stable financial performance	7
Products and services provided	8
Risk management	9
Orbital law	10
Corporate governance	11
Promoting awareness of accounting ethics	12

4.2.2. Formation of Structural Self-interaction Matrix

The first step in structural-interpretive modelling is to calculate the internal relationships of the indicators. Experts' perspectives are used to reflect the internal relationships between the indicators. The matrix obtained in this step shows which variables a variable affects and which variables it is affected. Symbols such as Table 6 are commonly used to identify the pattern of elemental relationships.

Table 6. Modes and symbols used to express the relationship between variables

Symbol	X	A	V	O
Relation	Two-way relationship	The variable j affects i	The variable i affects j	Lack of relationship

The structural self-interaction matrix consists of the dimensions and indicators of the study and their comparison using four modes of conceptual relationships. The obtained information is based on the summative interpretive structural modelling method, and the final structural self-interaction matrix is formed. According to the signs in Table 6, the structural self-interaction matrix will be shown in Table 7.

4.2.3. Formation of the Received Matrix

The resulting matrix is obtained by converting the structural interaction matrix into a two-value matrix of zero and one. In the received matrix, the elements of the original diameter are equal to one.

Table 7. Structural self-interaction matrix

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1		A	O	O	X	X	V	X	A	V	A	O
2			V	V	V	X	V	V	V	V	V	X
3				O	O	X	X	V	X	X	A	X
4					O	V	V	V	V	V	A	A
5						V	V	V	V	V	A	A
6							V	V	O	V	A	A
7								A	A	X	A	A
8									A	O	A	A
9										V	A	A
10											A	A
11												A
12												

Secondary relationships must also be controlled to ensure. Suppose a lead to B and B leads to C. In that case, A must lead to C. If direct effects should be considered based on the secondary relationship, but this has not happened in practice, the table should be corrected, and the secondary relationship should also be shown. Therefore, the received matrix of research variables is presented in Table 8.

Table 8. Input matrix of research variable

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1	1	0	0	0	1	1	1	1	0	1	0	0
2	1	1	1	1	1	1	1	1	1	1	1	1
3	0	0	1	0	0	1	1	1	1	1	0	1
4	0	0	0	1	0	1	1	1	1	1	0	0
5	1	0	0	0	1	1	1	1	1	1	0	0
6	1	1	1	0	0	1	1	1	0	1	0	0
7	0	0	1	0	0	0	1	0	0	1	0	0
8	1	0	0	0	0	0	1	1	0	0	0	0
9	1	0	1	0	0	0	1	1	1	1	0	0
10	0	0	1	0	0	0	1	0	0	1	0	0
11	1	0	1	1	1	1	1	1	1	1	1	0
12	0	1	1	1	1	1	1	1	1	1	1	1

4.2.4. Determining Relationships and Levelling Dimensions and Indicators

To determine the relationships and level the criteria, a set of outputs and a set of inputs for each criterion must be extracted from the received matrix.

Table 9. A set of inputs and outputs to determine the level

Variable	Input: Impact	Output: Impact	Subscription	Level
1	1,2,5,6,8,9,11	1,5,6,7,8,10	1,5,6,8	**2**
2	2,6,12	1,2,3,4,5,6,7,8,9,10,11,12	2,6,12	**6**
3	2,3,6,7,9,10,11,12	3,6,7,8,9,10,12	3,6,7,9,10,12	**3**
4	2,4,11,12	4,6,7,8,9,10	4	**4**
5	1,2,5,11,12	1,5,6,7,8,9,10	1,5	**4**
6	1,2,3,4,5,6,11,12	1,2,3,6,7,8,10	1,2,3,6	**3**
7	1,2,3,4,5,6,7,8,9,10,11,12	3,7,10	3,7,10	**1**
8	1,2,3,4,5,6,8,9,11,12	1,7,8	1,8	**2**
9	2,3,4,5,9,11,12	1,3,7,8,9,10	3,9	**3**
10	1,2,3,4,5,6,7,9,10,11,12	3,7,10	3,7,10	**1**
11	2,11,12	1,3,4,5,6,7,8,9,10,11	11	**5**
12	2,3,12	2,3,4,5,6,7,8,9,10,11,12	2,3,12	**6**

The set of outputs includes the criterion itself and the criteria that affect it. The set of inputs includes the criteria themselves and the criteria that affect them. Then the set of bilateral relations of criteria is determined. For variable C_i, the set of access (output or effects) includes variables accessed through variable C_i. The set of prerequisites (inputs or effects) includes the variables through which the variable C_i can be reached. After determining the access settings and the prerequisite set, the subscription of the two sets is calculated. The first variable whose share of the two sets is equal to the achievable set (outputs) will be the first level. Therefore, the first level elements will impact the model most. After determining the level, the criterion whose level is determined is removed from the whole set and again forms the set of inputs and outputs, and the next variable level is obtained. Therefore, the variables of corporate governance and the products and services offered are the first level or dependent. After identifying the first level variable (s), these

RESEARCH ARTICLE

variable (s) are deleted, and the set of inputs and outputs is calculated without considering the first level variables. The common set of identifiers and variables whose share is equal to the inputs are selected as second-level variables. According to the computational output of the structural-interpretive model, the accounting variables of energy consumption management and stable financial performance are the second level. To determine the third level elements, the second level variables are removed and once again, the set of inputs and outputs is calculated without considering the second level variables. The common set of identifiers and variables whose share is equal to the set of inputs are selected as third level variables. According to the output of the model calculations, the variables of corporate social accounting for society and corporate social accounting for employees in environmental management and corporate social accounting for customers and risk management are the third level. The variables of investment and financing and social accounting of the company for customers are in the fourth level. The variable of the rule of law is the fifth level. The sixth and most effective model variables are the strategic approach to environmental accounting and promoting accounting ethics.

4.2.5. Drawing the Final Structure-interpretive Model

The final pattern of the levels of the identified variables is shown in Figure 1. In this figure, only the meaningful relations of each level on the elements of the lower level and the meaningful internal relations of the elements of each line are considered.

4.2.6. Influence-dependence Power Analysis

In the ISM model, the interrelationships and effectiveness between criteria and the relationship of criteria at different levels are well shown, which leads to a better understanding of the decision-making space by managers. To determine the key criteria of penetration power and dependence of the criteria in the final access matrix. The power-dependence diagram for the studied variables is shown in Figure 2.

Based on the power of dependence and the influence of variables, a coordinate system can be defined and divided into four equal parts. In this study, a group of variables were placed in the stimulus subgroup; these variables have high penetration and low dependence. In the next category are dependent variables resulting from the product development process and less likely to underlie other variables.

In this analysis, the variables are divided into four groups: autonomous, dependent, connected (independent) and independent.

Autonomous: Autonomous variables have a small degree of dependence and conductivity. These criteria are generally separated from the system because they have poor connections to the system. A change in these variables does not cause a severe system change.

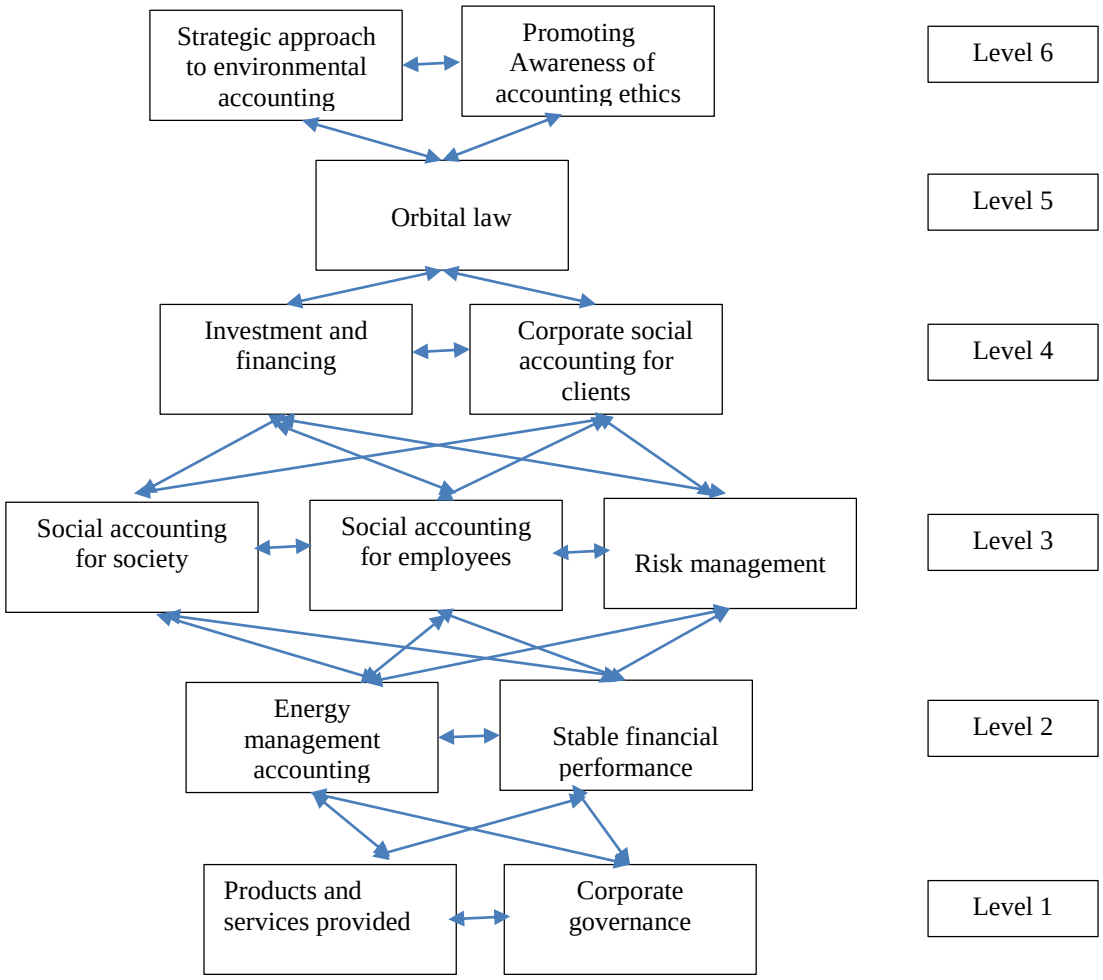


Figure 1. Structural-Interpretive Model of Sustainable Development Accounting Information Disclosure Factors

Table 10. Influence power and degree of dependence of research variables

	Research variables	Degree of dependence	Leverage
1	Energy management accounting	8	6
2	Strategic approach to environmental accounting	4	12
3	Social accounting for society	9	8
4	Investment and financing	5	6
5	Corporate social accounting for clients	6	7
6	Social accounting for employees	9	7
7	Products and services provided	13	3
8	Stable financial performance	11	3
9	risk management	8	6
10	Corporate governance	12	3
11	Orbital law	4	10
12	Promoting awareness of accounting ethics	4	11

RESEARCH ARTICLE

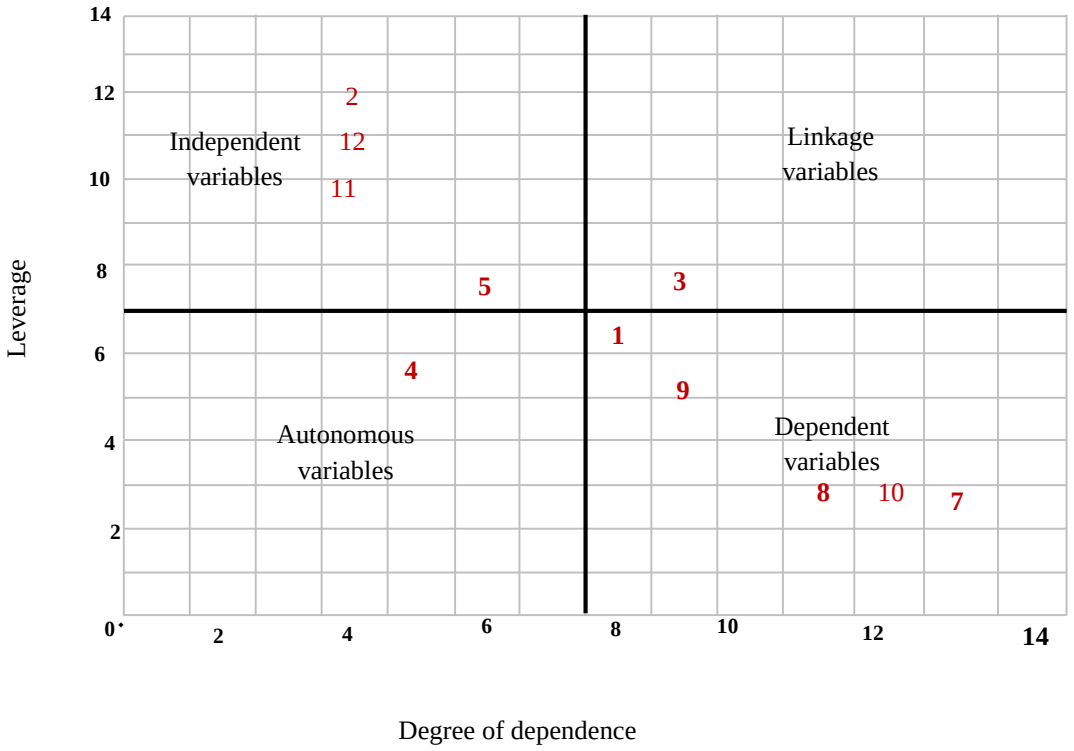


Figure 2. Infiltration power diagram and degree of dependence (MICMAC output)

Dependent: Dependent variables have strong dependence and poor conductivity. These variables generally have a high impact and low impact on the system.

Independent variables have low dependence and high conductivity; in other words, high impact and low impact are the characteristics of these variables.

Linkage: Interface or link variables have high dependence and high conductivity; in other words, the effectiveness of these criteria is very high, and any small change on these variables causes fundamental changes in the system.

According to the infiltration-dependency power diagram, variables No. 2, 11 and 12 have high penetration power and have little impact and are located in the area of independent variables. Variables 1, 6, 7, 8, 9 and 10 are highly dependent but have little influence, so they are considered dependent variables. Variables 3 and 5 have the same penetration power and degree of dependence, linked variables. Variable number 4 is also located in the first quarter, is the autonomous region and can be removed from the model.

5. Conclusion and Discussion

The popularity of sustainable development accounting has increased dramatically over the past two decades. So many companies are choosing new methods and ways to disclose their financial information about the core, social activities, the results of their effects, and so on. Sustainable development accounting must be linked to the company's strategies and follow a sustainable framework. As a result of this; Shareholders, suppliers, and government agencies want to understand better how a resource management company allocates itself to achieve the organisation's goals and

achieve sustainable development. Despite the introduction of sustainable development accounting in Iran, there is a research gap in information disclosure with a sustainability approach. In this regard, this study was conducted to present an interpretive structural model of sustainable accounting information disclosure factors. In order to identify the research variables, the research content and reliable sources in the field of disclosure of sustainable development accounting information were analysed, which included 4 dimensions (environmental, social factors, economic and leadership factors) in the form of 12 variables and then a matrix questionnaire to determine the pairwise relationship of variables. Compiled and provided to experts. The data obtained from the questionnaire were analysed using an interpretive structural model and plotted at 6 levels in an interactive network. Also, the influence power and the degree of dependence of these variables on each other in the influence-dependence power matrix has been examined according to the output of the structural-interpretive model of the variables of products and services, and corporate governance is the first level or the most basic elements of the model. Accounting variables of energy management and sustainable financial performance are the second level. Social accounting variables for the community and social accounting variables for employees and risk management are the third level. The variables of investment, financing and social accounting for customers are in the fourth level, the variable of the rule of law is the fifth level, and the variables of the strategic approach to the environment and promotion of moral awareness are the sixth level variable and the most influential model variable. Therefore, the results of this study are consistent with the findings of Giang et al. (2020), Braam and Peeters (2018), Manes-Rossi et al. (2018), Naciti (2019), Abdi, Kordestani and Rezazadeh (2020), Akhtarshenas, Khodamipour and Pourheidari (2020), Aktas, Kayalidere, and Kargin (2013) and Abbasi Astamal et al. (2021).

The governance system determines the governance dimension with internal factors such as corporate ownership structure, economic status, regulatory and legal system, government policies and organisational culture. Ethical awareness is an essential part of the accounting profession of an accountant. In other words, ethical awareness in the accounting profession is essential. Every accountant must have the moral ability because this is an important aspect of the quality of the services provided to customers. For this reason, accounting professional organisations train or recognise the ethical knowledge of accounting to their members to improve professional ethics. In describing the results, it should be noted that sustainable development accounting should be linked to the company's strategies and follow a sustainable framework (Yang, Li and Feng, 2017). From a social perspective, social accounting seeks to account for the cost and benefits of corporate activities about the community and the environment. Social accounting makes it possible to assess the ability to meet social obligations by measuring and reporting the interactions between the business unit and the surrounding community. From the environmental point of view, awareness of the natural system's sensitivities and delicacies and understanding the opportunities and threats in the environment is an undeniable necessity for sustainable development planners. With the help of conscious management and using new management tools, especially environmental accounting, irrational human behaviours in the environment can be curbed. Better management of environmental costs is often beneficial to industry and society, and accountants use it to identify opportunities to reduce environmental costs or support environmental projects that generate revenue streams. From an economic point of view, due to scientific and technical advances on the one hand and rapid economic growth on the other, it has created the need for accountants to acquire the necessary skills in related specialised fields. Today's world economic system provides and reports accurate financial and other economic information to decision-making centres. As part of the information system, accounting plays a

significant role in economic development decisions. Therefore, the successful work of development programs requires relevant and reliable information that can support the decisions of relevant programs in this regard (Abbasi Astamal, 2020).

According to the research findings, solutions to promote the disclosure of sustainable development accounting information are presented. Therefore, the Tehran Stock Exchange Organization is suggested to calculate the efficiency score of companies' sustainability reporting and rank them based on the proposed model to improve disclosure quality in terms of subject matter for users of reports and information provided by the stock exchange. Also, in their organisational structure, establish a unit or independent committee for reporting the sustainability of companies to formulate strategies and goals, to consider how to disclose it. One of the general limitations of this research is the lack of access to some experts.

References

1. Abbasi Astamal, M., Zeynali, M., Baradaran Hassanzadeh, R. and Badavar Nahandi, Y. (2021). Explain and Prioritise Information Disclosure Factors related to Sustainable Development Accounting with Fuzzy Approach. Advances in Mathematical Finance and Applications, 6(4), pp. 851-868. (in Persian). http://www.iaujournals.ir/article_678864.html
2. Akhtarshenas, D., Khodamipour, A. and Pourheidari, O. (2020). Developing a model of factors affecting corporate sustainability in Iran, *Empirical Studies in Financial Accounting*, 16(65), pp. 175-201. (in Persian). https://doi.org/10.22054/QJMA.2019.47002.2061
3. Abbasi Astamal, M., Zeinali, M., Baradaran Hassanzadeh, R. and Badavar Nahandi, Y. (2021). Fuzzy Gap Analysis of Sustainable Development Accounting Disclosure Factors with Mixed Approach in Iran. *Journal of Governmental Accounting*, 8(1), pp. 29-52. (in Persian).
4. http://gaa.journals.pnu.ac.ir/article_7876_d28ad2f2592754c921fe91ae8ded4bec.pdf
5. Afzalianmand, M. and Abdullahzadeh, B. (2016). The role of sustainable development accounting in supporting the sustainable development of the industrial sector, *Islamic Humanities Monthly*, 1(10). pp. 1-11. (in Persian). https://civilica.com/doc/514321/
6. Abbasi Astamal, M., & Zeynali, M. (2021). Designing a Structural-interpretive Model of Information Disclosure Factors related to Sustainable Development Accounting. *Iranian Journal of Accounting, Auditing and Finance*. ahead of print. (in Persian). https://doi.org/10.22067/ijaaf.2021.72909.1046
7. Abdi, M., Kordestani, G. and Rezazade, J. (2019). Designing of Corporates' Coherent Sustainability Reporting Model. *Journal of Financial Accounting Research*, 11(4), pp. 23-44. (in Persian). https://doi.org/10.22108/FAR.2019.118585.1498
8. Abdi, M., Kordestani, G. and Rezazadeh, J. (2020). Sustainability Reporting: Ranking of Stimuli and Indicators, *Empirical Accounting Research*, 10(2), pp. 71-114. (in Persian). https://doi.org/10.22051/jera.2019.25698.2404
9. Ahmed, M. (2018). Quality of Sustainable Corporate Reporting: An Evidence from Bangladesh. http://dspace.uiu.ac.bd/handle/52243/212
10. Aktas, R., Kayalidere, K. and Kargin, M. (2013). Corporate sustainability reporting and analysis of sustainability reports in Turkey. *International Journal of Economics and Finance*, 5(3), pp. 113-125. http://dx.doi.org/10.5539/ijef.v5n3p113
11. Akbas, H, E. (2014). Company Characteristics and Environmental Disclosure: An Empirical Investigation on Companies Listed on Borsa Istanbul 100 Index. *Muhasebe ve Finansman Dergisi*, 62(9), pp.145-164. http://journal.mufad.org.tr/attachments/article/734/9.pdf

12. Bebbington, J. and Unerman, J. (2018). Achieving the United Nations Sustainable Development Goals: an enabling role for accounting research. Accounting, *Auditing & Accountability Journal*, 31(1), pp. 2-24. https://doi.org/10.1108/AAAJ-05-2017-2929
13. Braam, G. and Peeters, R. (2018). Corporate sustainability performance and assurance on sustainability reports: Diffusion of accounting practices in the realm of sustainable development. *Corporate Social Responsibility and Environmental Management*, 25(2), pp. 164-181. https://doi.org/10.1002/csr.1447
14. Bravo, F. and Reguera-Alvarado, N. (2019). Sustainable development disclosure: Environmental, social, and governance reporting and gender diversity in the audit committee. *Business Strategy and the Environment*, 28(2), pp. 418-429. https://doi.org/10.1002/bse.2258
15. Fakhari, H., Malekian, E. and Jafaei, M. (2018). Explaining and ranking the components and indicators of environmental, social and corporate governance reporting by hierarchical analysis in companies listed on the stock exchange. *Quarterly Journal of Value and Behavioral Accounting*, 2 (4), pp. 153-187. https://www.sid.ir/fa/journal/ViewPaper.aspx?id=464511
16. Giang, N., Binh, T., Thuy, L., Ha, D. and Loan, C. (2020). Environmental accounting for sustainable development: An empirical study in Vietnam. *Management Science Letters*, 10(7), pp. 1613-1622. https://doi.org/10.5267/j.msl.2019.12.005
17. Huang, L., Wu, J. and Yan, L. (2015) Defining and measuring urban sustainability: a review of indicators. *Landscape ecology*, 30(7), pp. 1175-1193. https://doi.org/10.1007/s10980-015-0208-2
18. Jizi, M. (2017). The influence of board composition on sustainable development disclosure. *Business Strategy and the Environment*, 26(5), pp. 640-655. https://doi.org/10.1002/bse.1943
19. Jafari Jam, H., Ali Asgari, F. and Zarei, H. (2019). Financial Performance and Value of Companies: The Role of Sustainability Information Disclosure. *Financial Accounting Knowledge*, 6(3), pp. 215-242. (in Persian). https://doi.org/10.30479/JFAK.2019.9582.2310
20. Kim, K. H., Kim, M. and Qian, C. (2018). Effects of corporate social responsibility on corporate financial performance: A competitive-action perspective. *Journal of Management*, 44(3), pp. 1097-1118. (in Persian). https://doi.org/10.1177/0149206315602530
21. Karami, M. and Salehi, A. (2019). The effects of social change on the development of accounting. *Management Accounting*, 11(38) pp. 79-92. https://jma.srbiau.ac.ir/article_12902.html
22. Khozin, A., Talibnia, G., Gerks, M. and Bani Mahd, B. (2018). Effect of ownership structure on the development of the level of sustainability reporting. *management accounting*, 11(36), pp. 1-13. (in Persian). https://jma.srbiau.ac.ir/article_11524.html
23. Khozin, A., Talibnia, G., Gerks, M. and Bani Mahd, B. (2017). Investigating the Level of Environmental Financial Reporting Development in the Companies Listed on the Tehran Stock Exchange. *Journal of Health Accounting*, 5(2), pp. 28-46. (in Persian). https://doi.org/10.30476/jha.2017.39317
24. Manes-Rossi, F., Tiron-Tudor, A., Nicolò. G. And Zanellato, G. (2018). Ensuring More Sustainable Reporting in Europe Using Non-Financial Disclosure-De Facto and De Jure Evidence. *Sustainability*, 10(4), pp. 1162. https://doi.org/10.3390/su10041162
25. Masoumi, S., Saleh Nejad, S. and Zabihi, A. (2018). Identifying the variables affecting the amount of sustainability reporting of companies listed on the Tehran Stock Exchange. *Auditing Knowledge*, 18(70), pp. 195-220. (in Persian). http://danesh.dmk.ir/article-1-1808-fa.html

26. Naciti, V. (2019). Corporate governance and board of directors: the effect of a board composition on firm sustainability performance. *Journal of Cleaner Production*, (237), pp. 1-18. https://doi.org/10.1016/j.jclepro.2019.117727
27. Namazi, M., Rajab Dori, H. and Rousta, A. (2018). Development of a model for sustainable development of professional accounting ethics, *ethics in science and technology*, 12(4), pp. 70-80. (in Persian). http://ethicsjournal.ir/article-1-881-fa.html
28. Rezapour, N. (2014). Critical Accounting Education in the Service of Sustainable Development, *Accounting Knowledge and Research*, (38), pp. 4-19. (in Persian). https://www.magiran.com/volume/94173
29. Razini, R., Azar, A. and Mohammadi, M. (2014). Designing a model for measuring the performance of agile organisations: a structural-interpretive modeling approach, Tomorrow management, 36(12), pp. 1-10. (in Persian). http://www.modiriyatfarda.ir/Article/13941228229281478
30. Saunila, M., Nasiri, M., Ukko, J. and Rantala, T. (2019). Smart technologies and corporate sustainability: The mediation effect of corporate sustainability strategy. *Computers in industry*, (108), pp. 178- 185. https://doi.org/10.1016/j.compind.2019.03.003
31. Wu, C. H. and Fang, W. C. (2011). Combining the Fuzzy Analytic Hierarchy Process and the fuzzy Delphi method for developing critical competences of electronic commerce professional managers. *Quality & Quantity*, 45(4), pp. 751-768. https://doi.org/10.1007/s11135-010-9425-6
32. Yang, N., Li, Z. And Feng, Y. (2017). Empirical study for influencing factors on environmental accounting information disclosure in chemical industry. *Chemical Engineering Transactions* (62), pp. 1591-1596. https://doi.org/10.3303/CET1762266
33. Yabloi Khumslui, M., Izadi Nia, N. and Arabsalehi, M. (2019). The effect of disclosed stability indicators on earnings quality, *Journal of Accounting Knowledge*, 9(1), pp. 7-34. (in Persian). https://doi.org/10.22103/JAK.2018.11049.2517
34. Zareian, H., Heyrani, F. and Moeinadin, M. (2020). Presenting an interpretive structural model of the indicators affecting the tax audit risk in the comprehensive tax plan. *Journal of Public Accounting*, 6(1), pp. 97-114. (in Persian). https://doi.org/10.30473/GAA.2020.50439.1337

RESEARCH ARTICLE

How to cite this article:

Abbasi Astamal, M., Zeynali, M. (2021). Designing a Structural-interpretive Model of Information Disclosure Factors related to Sustainable Development Accounting. Iranian Journal of Accounting, Auditing and Finance, 5(4), 21-38. doi: 10.22067/ijaaf.2021.40775

URL: https://ijaaf.um.ac.ir/article_40775.html

Ferdowsi University of Mashhad

Iranian Journal of
Accounting, Auditing & Finance

Received: 2021-11-05
Accepted after revision: 2021-12-01
Published online: 2021-12-24

RESEARCH ARTICLE DOI: 10.22067/ijaaf.2021.41022

Auditor Switching and Abnormal Returns

Mohammad Javad Zare Bahnamiri, Narges Sarlak, Niloofar Beyki

Department of Accounting, University of Qom, Qom, Iran

Abstract

Every investor pays special attention to the main factor in their decisions: a return. What is essential for users of financial information is not the procedures and principles used in accounting, but the exit from the financial system, because it helps them achieve their goals. Many capital market concerns focus on accounting and auditing operations. Therefore, the auditor's independence is the basis of public trust in the audit process and the assurance of auditors` reports. For this purpose, this study investigates the effect of auditor switching on abnormal returns. Therefore, three hypotheses have been formulated, and a sample consisting of 365 companies listed on the Tehran Stock Exchange during the years 2010 to 2020 has been selected. The results indicate that auditor switching has no significant effect on abnormal returns. Also, between the CU switch and CD switch, the CD switch has a negative and significant effect on abnormal returns.

Keywords: Abnormal Return, Auditor Switching, Behavioral Finance, Six-factor Model Fama & French

Corresponding author: Mohammad Javad Zare Bahnamiri
Email: *Mj.zare@qom.ac.ir*

Number of Tables: 9
Number of References: 43
Pages: 15

RESEARCH ARTICLE

1. Introduction

The development of any country requires spending resources in the optimal form and guiding it in the right direction. Investors are looking for ways to increase their wealth, and to this end, they are looking for investment opportunities that will create maximum wealth for them (Ahmad Panah, 2016). Investors look for savings in the most return investments (Pourheydari and Shahbazi, 2009). The importance of predicting returns has led researchers to look for factors that are significantly related to or affect returns. Research results show the impact of financial and non-financial information on stock returns. Investors use stock return information to evaluate company performance, considering its content. In the event of a reduction in stock return information content, this is a wake-up call for the company and a sign of poor company performance (Derakhshanian, 2016).

The difference between the actual return and the expected return on a share is called an abnormal stock return. Access to accurate and reliable information is essential to create a healthy competitive environment for investors and all participants in the capital market. In the capital market, the information available to users must be transparent and reliable; otherwise, incomplete information will increase transaction costs and the inability to allocate resources optimally (Badghan, 2016). According to Agency Theory, one of the factors causing information asymmetry is the existence of a conflict of interest between the owner and the manager, which leads to abnormal returns. Shareholders can not follow the actions manager momentarily to make sure whether the manager's decisions are in the interests of shareholders or not; therefore, shareholders do not have the necessary information about the manager's operations (Hagi, 2015). They can achieve abnormal returns when information is available to certain people. As a result, it reflects the informational value of abnormal returns on capital markets (Vadiei and Hoseini, 2012).

Investors rely on auditors' opinions and reports to ensure that the financial statements provided by companies are fair. As a result, the presence of an auditor reduces information asymmetry and increases the quality and transparency of financial statements; if the quality of the audit increases, fluctuations in stock returns will be adjusted due to reduced access to private information because higher-quality auditors will be more able to detect errors in the financial statements and resist the manager's insistence on changing the audit opinion. By increasing the quality of information about future cash flows, the company's discount rate decreases, resulting in a reduction in abnormal stock returns in the future (Rashidi Baqhi, 2019). The findings of several studies also show a relationship between audit quality and capital market investors' decisions. To solve the problem of auditor independence and increase the quality of audit services, the solution for professional authorities and stock exchanges in most countries is to rotate auditor firms. The audit firm rotation process means the switching of auditors after performing several audits of a company (Alavi Tabari and Bashiri Manesh, 2013). As a result, this study investigates the impact of auditor switching on abnormal returns.

2. Literature Review and Hypotheses Development

It is stated that company executives with more company-related information tend to inform the potential users. The company may increase its values by signalling through its annual reports. Investors will positively respond when they receive a good signal mentioned in the annual financial report. In contrast, the investors will respond negatively when a bad signal is perceived. The response changes can be observed. The company may increase its values by signalling through its annual reports. Investors will positively respond when they receive a good signal mentioned in the annual financial report. In contrast, the investors will respond negatively when a bad signal is perceived. The

changes in the response can be observed through the changes in the stock price; in this particular case, the changes will be measured using the abnormal return. Therefore, abnormal returns are available as factors of market reaction to the available information. Financial and non-financial information published by companies leads to the reaction of investors. Also, the types of auditor switching, CU (Cross-Up) and CD (Cross-Down) auditor switching, can be seen from the auditor's report (Nawangsari and Iswajuni, 2019). In the present study, the auditor change has been investigated following the classification performed by Stunda (2012). These three categories are: The first category is the auditor switching, switch from an auditing firm to an entity of similar size; the second category is cross down auditor switching (CD) or auditor switching from a larger auditing firm to a smaller auditing firm and the third category, cross up audit (CU), in which case the auditor was switching from a smaller auditing firm to a larger auditing firm. DeAngelo (1981) show that larger auditing firms are less worried about losing customers because they have more customers; As a result, the quality of their services is higher than that of smaller auditing institutions. Ghosh, Gu and Jain (2005) also believe that the long tenure of the auditor and the client reduces the independence and quality of the audit. Chaney and Philipich (2002) found that shifting the auditor from a larger institution to a smaller institution caused a negative market reaction due to investors' expectation that the information content of reported earnings would decrease. This change in the reaction can be seen through lower stock prices. If the auditor switches after the publication of the auditor's opinion, it is considered to announce negative news about the company's performance; Because the manager may appoint a new auditor with lower quality to receive an acceptable opinion. Kornberger et al. (2010) state that a developing institution will receive a positive Reaction from investors by auditors switching to larger auditing firms.

Reducing information asymmetries leads to the development of corporate governance and adherence to corporate financial reporting guidelines, increasing the reliability of financial statements—audit quality signalling two essential tasks of the auditor: contracts oversight and the validity of financial information. When the company decides to auditor switching, this switching may be cross up auditor switching or cross down. Reducing information asymmetries leads to the development of corporate governance and adherence to corporate financial reporting guidelines, increasing the reliability of financial statements. Audit quality signals two essential tasks of the auditor: contracts oversight and the validity of financial information. When the company decides to auditor switching, this switching may be cross up auditor switching or cross down auditor switching. If the cross-up auditor switching, this type of auditor switching can indicate management's unwillingness to manipulate the figures of financial statements and the market reacts positively. The company's earnings response coefficient is also higher in this situation. Investors see this type of auditor switching as a sign of collusion between the manager and the auditor and react negatively when they cross down auditor is switching. The earnings response coefficient will also be lower in this situation (Alavi Tabari and Bashiri manesh, 2013). Tanani (2017) results indicate a positive and significant relationship between the expected abnormal return growth and earnings response coefficient. Alavi Tabari and Bashiri manesh's (2013) results show the positive effect of audit quality and auditor switching to a higher quality on the earnings response coefficient for companies with abnormal earnings. It also indicates the negative impact of the auditor switching to a lower quality on the earnings response coefficient for companies with abnormal earnings.

One of the reasons companies switch auditors from bottom to top (CU) is to receive a positive reaction from investors. When the information becomes available to investors after the auditor switching, they see this information as a positive sign from the company and as a measure of the

company's good performance. Also, this type of switch can negatively affect abnormal returns, especially if this switch aims to prevent interest conflicts between management and the auditor. This may hurt investors, especially when the constant auditor switches between audit firms (Nawangsari and Iswajuni, 2019). Auditor switching from top to bottom (CD) can also positively or negatively affect abnormal returns. Following institutions' passage and implementation of the Sarbanes-Oxley Act, many audit firms provided better services to their clients. However, some investors may take the information as a bad signal, indicating a practice of opinion shopping in which what is being reported is not similar to that of the actual situation. Opinion shopping is an effort a company takes to get a better audit opinion (Nawangsari and Iswajuni, 2019). Better quality audit firms do not worry about losing customers, so their opinions are more accurate and reliable. The number of rejected and qualified audit opinions hurts the company's stock price. In this situation, managers replace their auditors with a lower quality audit (Alavi Tabari and Bashiri manesh, 2013).

Close research has been done in Iran and other countries; this section will have a brief overview of this research.

Ball and Brown's (1968) showed that an increase in earnings increases abnormal returns and vice versa. Kauffman, Spaulding and Wood (2009) studied liquidity and abnormal returns in weak performing markets. The results showed a weak relationship between liquidity and market efficiency and a positive relationship between market efficiency and abnormal returns. Muradoğlu and Sivaprasad (2012) show that the average increase in risk reduces the abnormal return on company change. Malhotra, Thenmozhi and Gopalaswamy (2013) show that market conditions and the type of industry significantly affect abnormal returns, and the reward ratio does not significantly affect abnormal returns. For payroll, company size and market conditions significantly affect returns. Company size, financial leverage, debt-to-equity ratio, and fluctuations in stock returns are other factors related to the company that significantly impact stock returns. But in the case of salaries, only the firm's size is an essential factor in the company, which positively affects returns. Hatem (2015) shows that the market reacts negatively due to increased profitability, firm size, and managerial ownership. In contrast, financial leverage has a positive effect on abnormal returns. Angulo-Ruiz et al. (2018) examined the relationship between corporate marketing and abnormal stock returns. The results show a direct and significant relationship between corporate marketing and abnormal stock returns. Lindros (2020) indicates a statistically significant relationship between unexpected profit and abnormal cumulative returns. Suryani and Pertiwi (2021) show that the announcement of the earthquake significantly affects the abnormal returns of insurance companies. These findings show that the market reacts to persistent bad news, and this news as negative information reduces stock prices. The results also show that investors may buy stocks at a lower price after the announcement of bad news or keep stocks to avoid losses. Herwany et al. (2021) examined the effect of announcing the COVID 19 epidemic on various sectors' stock and abnormal returns. The results show that abnormal returns decreased 30 days before and 30 days after the announcement in the real estate and construction sectors and increased in the facilities and transportation sectors. Also, the financial, trade, services, and investment sectors have been affected to a greater extent.

Sinaei and Mahmoudi (2005) showed that abnormal returns occur on the meeting date. Rezaei and Heidarzadeh (2014) examined the effect of board credit on the relationship between agency problems and abnormal returns accumulated in more or less investing companies. They showed that agency problems have a negative and significant effect on the accumulated abnormal return. The credibility of the board of directors has a positive and significant effect on this relationship. Darabi (2016) examined the method of financing (capital structure) and abnormal returns. The results show the inverse and significant effect of book leverage on the accumulated abnormal return of companies.

Sadeghi, Dastgir and Amiri (2015) investigated the relationship between conditional and unconditional stability of earning components and abnormal returns and accruals anomaly. Findings showed a significant difference between conditional and unconditional stability of abnormal earning on abnormal returns. Weiss Rezaei, Veisi Hesar and Ghandchi (2020) examined the relationship between audit fees, growth opportunities, and abnormal returns of companies. The results showed that audit fees and abnormal returns were not significantly related. Emsakpur et al. (2021) investigated the role of quarterly earnings announcements on the relationship between traders' trading speed and cumulative abnormal returns. The results show that the high trading speed of stocks in all four time periods of earning announcement affects cumulative abnormal return and leads to information asymmetry.

According to research in the field of abnormal returns are observe, In Iran, no similar research has been conducted on auditor switching and its effect on abnormal returns. The issue of auditor switching is also very limited. In comparison, the news of the auditor switching and the reasons for this switch can play a significant role in investment decisions and the capital market. Therefore, the present study results can provide useful information to the capital market and users of corporate financial statements.

According to the theoretical foundations, the research hypotheses are:

H1: The auditor switching affects abnormal returns.

H2: The Cross Up auditor switching affects abnormal returns.

H3: Cross Down auditor switching affects abnormal returns.

3. Research Methodology

Selected companies in the research include Tehran Stock Exchange and OTC companies from 2010 to 2020. In the present study, the screening method (systematic) has been used to select the sample. The limitations imposed on the statistical population of the research are:

1) The information they need is available, 2) The end of the financial year of the company under review is March 20, 3) Companies that are not part of financial institutions, investments, and banks, 4) Have not stopped trading for more than 4 consecutive months. Due to the mentioned limitations, the available research population reached 365 companies (2422 years - companies) according to Table (1) and was examined as a sample.

Table 1. How to screen the research community

Number of companies	Limitations
637	Total number of listed and OTC companies on March 20, the year 2020
(18)	Number of companies belonging to the banking industry
(25)	Number of companies belonging to the pension industry
(32)	Number of companies belonging to the investment industry
(24)	Number of financial and monetary intermediation companies
(193)	Number of companies whose information was not fully available during the research period
(21)	Companies that have stopped trading for more than 4 months
324	Number of samples selected

The document mining method has been used to collect research data. Also, the required data have been used from financial statements, databases of the Tehran Stock Exchange and to obtain information related to the ranking of auditing firms from the website of the Society of Certified Public Accountants. Also, in this study, STAT 14 and EViews 10 software were used to analyze the data.

RESEARCH ARTICLE

4. Rsearch Models

Data were analyzed using econometric software using multiple linear regression. The regression model can be seen in the following equation:

$$AR_{it} = \alpha + \beta_1 Lateral_{it} + \beta_2 CU_{it} + \beta_3 CD_{it} + \beta_4 ROE_{it} + \beta_5 NWC_{it} + \beta_6 BV_{it} + \beta_7 STA_{it} + \beta_8 CAICL_{it} + \beta_9 ROA_{it} + \beta_{10} CM_{it} + \beta_j IndustryDum + \beta_k YearDum + \varepsilon_{it} \quad (1)$$

AR_{it}, abnormal return. α, Width of origin. Lateral_{it}, auditor switching. CU_{it}, cross up auditor switching. CD_{it}, cross down auditor switching. ROE_{it}, return on equity. NWC_{it}, networking capital. BV_{it}, leverage. STA_{it}, total asset turnover. $CAICL_{it}$, Quick Ratio. ROA_{it}, return on assets. CM_{it}, financial flexibility.

If the model test result shows a significant effect of each of the independent variables of the research on the abnormal return, the research hypotheses are confirmed.

4.1. Dependent variable: Abnormal Return

In this study, abnormal return is considered a dependent variable of the research. Abnormal return is the difference between the realized and the expected return (Jogiyanto, 2012).

4.1.1. Calculating realized return

$$R_{it} = \frac{P_{it}(1+\alpha+\beta)+D_{it}-P_{it-1}-C\alpha}{P_{it-1}+C\alpha} \quad (2)$$

R_{it}, return. P, stock prices. D_{it}, dividend cash payment. α, β , C, raising Equity Capital from Stockholders' Receivables and cash brought by shareholders, Percentage of capital increase from the place saved and the nominal amount paid by the investor for the capital increase from the place brought in cash.

4.1.2. Calculating the expected return

In this research, following the Fama and French model (2018), the Six-Factor Fama and French model have been used to calculate the expected return per share.

$$R_{it} - R_{ft} = \alpha_0 + \beta_i(R_{mt} - R_{ft}) + s_i(SMB)_{it} + h_i(HML)_{it} + r_i(RMW)_{it} + c_i(CMA)_{it} + m_i(WML)_{it} + \varepsilon_{it} \quad (3)$$

In this equation R_{it} is the month t return on asset i, R_{ft}, Risk-free rate of return per month t, $(SMB)_{it}$, (small minus big) and $(HML)_{it}$, (high minus low book- to-market equity) is the size and value factors of the FF (1993) three-factor model, $(RMW)_{it}$, (robust minus weak) is a profitability factor, $(CMA)_{it}$, (conservative minus aggressive) is an investment factor, and $(WML)_{it}$, (up to minus down) is a momentum factor.

The dependent variable of Model (3) is the monthly stock return surplus equal to the difference between the monthly return and the risk-free monthly rate of return. In this study, the interest rate on one-year deposits has been used as a risk-free rate of return. To calculate the factors of the Fama and French model, first, the necessary variables are calculated according to the following Table (2) (Hadian, Hashemi and Samadi, 2017):

DOI: 10.22067/ijaaf.2021.41022

RESEARCH ARTICLE

Then the size factor is divided into two groups: small (S) and big (B) and other factors according to 30% of high values, 40% of medium values , and 30% of low values, respectively into three categories: high-value factor (H), medium value (N) and low-value companies (L), high profitability (R), medium profitability (N) and low profitability (W), bold investment (A), balanced (N) and conservative (C) and based on the momentum factor of companies to The three groups of winning portfolio (w), medium portfolio (N) and losing portfolio (L) are classified (Pour Zamani and Bashiri, 2013).

Finally, the formation of factors following Fama and French (2018) is presented in the form of a table (3).

Table 2. The names of the variables and how to calculate them

Calculation method	Variable
The natural logarithm of the total market value of the company at the fiscal year ending	Size
The book equity on the market for the fiscal year ending in the previous calendar year	Book Equity to Market Cap
Operating profit less financial costs divided by the book value of equity for the fiscal year ending in the previous calendar year	Profitability
Changes in total assets for the year ending in t-1 are divided by total assets at the end of year t-1	Investment
The geometric average rate of return (GAAR) twelve months ago except one last month	Momentum

Table 3. Structure of factors

Relationship of factors		factors
$SMB_{B/M} = (SH + SN + SL)/3 - (BH + BN + BL)/3$	$SMB_{B/M}$	$(\mathbf{SMB})_{\mathbf{it}}$
$SMB_{OP} = (SR + SN + SW)/3 - (BR + BN + BW)/3$	SMB_{OP}	
$SMB_{Inv} = (SC + SN + SA)/3 - (BC + BN + BA)/3$	SMB_{Inv}	
$SMB = SMB_{B/M} + SMB_{OP} + SMB_{Inv}$		
$HML = (SH + BH)/2 - (SL + BL)/2$		$(\mathbf{HML})_{\mathbf{it}}$
$RMW = (SR + BR)/2 - (SW + BW)/2$		$(\mathbf{RMW})_{\mathbf{it}}$
$CMA = (SC + BC)/2 - (SA + BA)/2$		$(\mathbf{CMA})_{\mathbf{it}}$
$WML = (SW + BW)/2 - (SL + BL)/2$		$(\mathbf{WML})_{\mathbf{it}}$

4.2. Independent Variables

The independent variables of this research are the three types of auditor switching as follows:

auditor switching: switch from an auditing firm to another auditing firm of similar size: a score of 1 is given for a switch of an auditing firm to an auditing firm of similar size, and a score of 0 is given for switching other than this.

Cross up auditor switching (CU): Score 1 to switch from small auditing firm to large auditing firm and otherwise zero.

Cross down auditor switching (CD): Score 1 to switch from large auditing firm to small auditing firm and otherwise zero.

RESEARCH ARTICLE

4.3. Control Variables

Return on equity ($\mathbf{ROE_{it}}$)**:** ratio of net earnings to total equity (Gibson, 2009).

Net working capital ($\mathbf{NWC_{it}}$)**:** Payable accounts minus total inventory and accounts receivable (Daneshi, 2016).

Leverage($\mathbf{BV_{it}}$) **:** Debts on equity (Darabi, 2016).

Total assets turnover($\mathbf{STA_{it}}$): Sales on assets (Esmaeil zadeh and Beheshti, 2016).

Quick Ratio($\mathbf{CAICL_{it}}$) **:** Total current assets minus inventory to current liabilities (Esmaeil zadeh and Beheshti, 2016).

Return on assets ($\mathbf{ROA_{it}}$) **:** Net profit divided by the company's total assets at the end of the fiscal year (Sadati, 2017).

Financial flexibility ($\mathbf{CM_{it}}$) **:** Changes in Cash Holding on Equity Market Value at the End of Fiscal Year t-1 (Alian Nejadi, 2013).

4.4. Endogenous Auditor Switching

Owners decide to auditor switching for various reasons, so self-selection orientations are likely. The ordinary least squares method causes contradictory results in situations where there is a problem of indigenousness of the main independent variable. Research shows that companies do not switch auditors for no apparent reason; rather, they seek to switch and select an auditor voluntarily based on their goals and interests. This leads to a violation of the principle of a random selection of the research sample. A comprehensive method has been used to estimate the "Propensity score" to solve this case. In this method, the company that tries to change its auditing firm with other auditing firms of different or similar sizes (without replacement and repetition) is matched based on the "Nearest neighbour matching" process (Dolatzarei, 2019). Finally, the research model is estimated using robust residual regression to ensure the estimates and endogenous control of the auditor switch.

$$Switch_{i.t} = \alpha_0 + \beta_1 Stown_{i.t-1} + \beta_2 AutTop_{i.t-1} + \beta_3 Size_{i.t-1} + \beta_4 ROA_{i.t-1} + \beta_5 Liq_{i.t-1} + \beta_6 Subs_{i.t-1} + \beta_7 Issue_{i.t-1} + \beta_8 \Delta Management_{i.t-1} + \beta_j IndustryDum + \beta_k YearDum + \varepsilon_{it} \quad (4)$$

Table (4) shows how to calculate endogenous model variables (Dolatzarei, 2019):

Table 4. How to calculate the variables of the endogenous model of auditor switch

variable	Calculation method
Auditor Switching (Switch)	If the auditor has switched, 1, is otherwise 0
Government ownership (Stown)	If the government or quasi-government companies own more than 50% of the company's shares, 1; otherwise, 0
Audit top (AutTop)	Trusted auditing firms rank first, 1 and otherwise 0
Owner size (Size)	The natural logarithm of assets
Return on assets (ROA)	Profit before interest and taxes on total assets
Liquidity (Liq)	Total current assets divided by total current liabilities
Subsidiary companies (Subs)	A company has one company or several subsidiaries, 1 otherwise 0
Increase the company's capital (Issue)	If the company has increased its capital is equal to 1 and otherwise 0
Change in management (ΔManagement)	In case of change of management, 1 otherwise 0

5. Research Results

5.1. Descriptive Statistics

Descriptive statistics of variables for 2422 observations are presented in Tables (5) and (6).

The results of Table (6) show that the auditor switching (from previous audit firm to audit firm of similar size) in 460 cases, Cross up auditor switching (from small audit firm to large audit firm) is

DOI: 10.22067/ijaaf.2021.41022

110 cases, Cross down auditor switching (from a large audit firm to a small audit firm) is 78 cases. These results indicate that companies that switch their auditors are less likely to switch from a large audit firm to a small audit firm.

5.2. Variance Inflation Factor

According to Table (7), the variance inflation factor of the explanatory variables of the research is less than 10, indicating the absence of alignment.

Table 5. Descriptive statistics of research variables

variable	symbol	average	Standard deviation	Minimum	Maximum	Skewness	Kurtosis
Abnormal returns	AR	-0.081	0.215	-0.978	0.988	-0.206	6.202
Return on equity	ROE	0.272	0.469	-3.884	4.319	-0.343	24.196
Net working capital	NWC	0.236	0.325	-0.786	1.493	0.483	3.506
Leverage	BV	1.694	7.697	-84.330	77.827	-0.990	71.514
Turnover of total assets	STA	0.912	0.795	0.000	10.385	3.846	29.884
Quick Ratio	CAICL	1.085	1.202	0.007	14.611	4.989	36.646
Return on assets	ROA	0.113	0.162	-0.789	0.837	-0.115	6.225
Financial flexibility	CM	0.010	0.092	-0.783	0.705	1.035	24.343
Owner size	Size	14.399	1.664	9.632	9.183	0.555	3.418
Liquidity	Liq	1.724	2.752	0.005	46.951	10.177	133.395

Table 6. Descriptive statistics of research variables

variable	symbol	Frequency		Abundance	
		1	0	1	0
Auditor switching	Lateral	18.992	81.007	460	1962
Cross up auditor switching	CU	4.541	95.458	110	2312
Cross down auditor switching	CD	3.220	96.779	78	2344
Auditor Switching	Switch	26.754	73.245	648	1774
Government ownership	Stown	28.654	71.345	694	1728
Audit top	AutTop	84.929	15.070	2057	365
Subsidiary companies	Subs	16.928	83.071	410	2012
Increase the company's capital	Issue	23.451	76.548	568	1854
Change in management	ΔManagement	67.175	32.824	1627	795

5.3. Hypothesis Test Results

To ensure the research results and for the endogenous control of the auditor switch, the findings of the research model have been estimated using robust residual regression, the results of which are described in Table (8). According to the results of Table (8), it can be seen that the probability of the F statistic is equal to 0.000, so the model is significant. The Adjusted R-squared is 0.26. This indicates the degree of explanation of the dependent variable changes by the model's explanatory variables. Also, the results reflected in Table (8) about testing the model hypotheses show that the coefficient of the auditor switching variable is -0.004 and the Prob of variable is 0.62. So the first hypothesis of the research is not confirmed; Regarding the Cross up auditor switching, the coefficient of this variable is -0.014, and the Prob of the variable is 0.335, so the second hypothesis of the research is not confirmed. Regarding the cross down auditor switching, the coefficient of this variable is -0.037,

and the Prob is 0.045. As a result, the third hypothesis of the model is confirmed. Based on this result, at the 90% confidence level, the auditor switching from top to bottom has a negative and significant effect on abnormal returns.

Table 7. Variance inflation factor

variable	symbol	VIF
Auditor switching	Lateral	1.08
Cross up auditor switching	CU	1.04
Cross down auditor switching	CD	1.03
Return on equity	ROE	1.39
Net working capital	NWC	1.50
Leverage	BV	1.23
Turnover of total assets	STA	1.32
Quick Ratio	CAICL	1.35
Return on assets	ROA	1.71
Financial flexibility	CM	1.03

Table 8. Results of estimating the research model with endogenous control (PSM approach)

variable	coefficient	Std. Error	t-Statistic	Prob
Lateral	-0.004	0.008	-0.50	0.620
CU	-0.014	0.015	-0.97	0.335
CD	-0.037	0.018	-2.01	0.045
ROE	0.013	0.008	1.61	0.108
NWC	0.024	0.014	1.71	0.089
BV	0.000	0.000	1.00	0.318
STA	-0.003	0.006	-0.48	0.630
CAICL	-0.008	0.003	-2.32	0.021
ROA	0.081	0.033	2.41	0.017
CM	-0.039	0.047	-0.83	0.409
Year - industry		Was controlled		
Adjusted R-squared: 0.259		F: 18.50		F-Statistic: 0.000

Among the control variables of the model, the variable of Quick Ratio with a Prob of 0.021 has a negative and significant effect on abnormal returns, and the variable of return on assets with a Prob of 0.017 has a positive and significant effect on abnormal returns. Also, networking capital with a coefficient of 0.024 and probe 0.089 has a positive and significant effect on abnormal returns.

5.4. Additional Test

The First difference regression model performed additional tests to ensure the results. The use of these types of regressions is useful when the independent variable of the research is the switch (Dolatzarei, 2019). For example, in this study, the independent variable is auditor switching. According to Ghosh and Lustgarten (2006), measuring the temporary changes of a directly dependent variable is one of the advantages of using the First difference regression model. Model (5) has been used for an additional test of the research model.

$$\Delta AR_{it} = \alpha + \beta_1 Lateral_{it} + \beta_2 CU_{it} + \beta_3 CD_{it} + \beta_4 \Delta ROE_{it} + \beta_5 \Delta NWC_{it} + \beta_6 \Delta BV_{it} + \beta_7 \Delta STA_{it} + \beta_8 \Delta CAICL_{it} + \beta_9 \Delta ROA_{it} + \beta_{10} \Delta CM_{it} + \beta_j IndustryDum + \beta_k YearDum + \varepsilon_{it} \quad (5)$$

ΔAR_{it}, abnormal return changes. α, Width of origin. Lateral_{it}, auditor switching. CU_{it}, cross up auditor switching. CD_{it}, cross down auditor switching. ΔROE_{it}, return on equity changes. ΔNWC_{it},

networking capital changes. ΔBV_{it}, Leverage changes. ΔSTA_{it}, total asset turnover changes.$\Delta CAICL_{it}$, Quick Ratio changes. ΔROA_{it}, return on assets changes. ΔCM_{it}, financial flexibility changes.

To ensure the research results, the research model is estimated using the First difference regression model, and the results of the model test (5) are presented in Table (9). According to the results of Table (9), it can be seen that the probability of the F statistic is equal to 0.000, so the model is significant. The Adjusted R-squared is 0.12; this indicates the degree of explanation of the dependent variable changes by the model's explanatory variables. Also, at the level of 90% confidence, due to the Prob of auditor switching and cross up auditor switching, the first and second hypotheses of the research are not confirmed. Given the Prob of the Cross down auditor switching variable, this variable has a negative and significant effect on abnormal returns; As a result, the third hypothesis of the research is confirmed.

Table 9. An additional test of research model with endogenous control (PSM approach)

variable	coefficient	Std. Error	t-Statistic	Prob
Lateral	-0.003	0.016	-0.19	0.851
CU	-0.042	0.029	-1.46	0.144
CD	-0.055	0.032	-1.71	0.088
ΔROE	0.005	0.008	0.67	0.503
ΔNWC	-0.035	0.018	-1.89	0.060
ΔBV	-0.000	0.000	1.24	0.215
ΔSTA	0.015	0.011	1.35	0.177
ΔCAICL	0.002	0.003	0.69	0.493
ΔROA	-0.006	0.071	-0.08	0.933
ΔCM	0.000	0.038	0.02	0.981
Year - industry		Was controlled		
Adjusted R-squared: 0.122		F: 5.46		F-Statistic: 0.000

6. Conclusion

This study aims to investigate the effect of auditor switching on abnormal returns. Multivariate regression has been used to test the research hypotheses of 365 companies during the 10 years from 2010 to 2020 and to test the data. Testing the first hypothesis of the research indicates that auditor switching has no significant effect on abnormal returns. This result shows that the auditor switching has no effect on investors' behaviour and consequently stock returns and lacks information content. Also, the result of testing the second hypothesis of the research indicates that the cross up auditor switching has no significant effect on abnormal returns. This result is contrary to Badavar Nehbandi and Taghizadeh Khanghah (2013) and Kornberger et al (2010). Their research shows a positive and significant effect of auditor quality and switches to higher-quality auditors on the growth of abnormal returns. Also, the results of Badavar Nehbandi and Taghizadeh Khanghah (2013) research show that the switch to a higher quality auditing firm, despite some bad news in profits, leads to an increase in stock prices. The results of research by researchers who examined the reaction of market investors to the type of auditing firms showed that larger auditing firms have a higher level of motivation to maintain auditor independence; Therefore, in their decisions, investors consider the size of the audit firm as one of the factors of the quality of audit services and react to it in the market. Testing the third hypothesis of the research indicates that the cross down auditor switching has a negative and significant effect on abnormal returns. This means that by shifting from a larger audit firm to a smaller or lower quality firm, abnormal returns will decrease and reflect investors' negative reaction to the announcement; the effect of this reaction on stock prices is visible and reduces stock prices. This result is in line with the research of Alavi Tabari and Bashiri Manesh (2013) and Chaney and Philipich

(2002), that when the switch of auditors from large auditing firms to other auditing firms is announced to the market, the market shows a decrease in stock prices and market returns. Gives, conforms. Some investors may consider this change as a bad omen if the switch from auditor to the auditor with lower quality is made with the intent of not receiving a conditional comment and And to consider this action as an act of Opinion Shopping, which indicates that the report does not correspond to the real situation. Opinion Shopping is an action a company takes to get a better audit opinion (Nawangsari and Iswajuni, 2019).

At the end of the study and according to the results, it is recommended that investors consider the reasons and motivation of the management of the switch before making any financial decision in the years of auditor switch. Also, due to the lack of information of most investors about the ranking of auditing firms, it is recommended to refer to the website of the Society of Certified Public Accountants to obtain information about the rating of auditing firms.

References

1. Angulo-Ruiz, F., Donthu, N., Prior, D. and Rialp, J. (2018). How does marketing capability impact abnormal stock returns? The mediating role of growth. *Journal of Business Research*, 82(3), 19-30. https://doi.org/10.1016/j.jbusres.2017.08.020
2. Ahmad Panah, N. (2016). The effect of Information Asymmetry on Abnormal short-term and long-term Returns on Initial offering of shares. *Master Thesis*, Semnan University. Iran. (In Persian). https://ganj.irandoc.ac.ir
3. Alavi Tabari, S. and Bashiri manesh, N. (2013). The effect of the Audit Quality and Auditor Switches on capital market. *Journal of Management Accounting and Auditing*, 2(6), PP. 65-75. (In Persian). https://jmaak.srbiau.ac.ir/article_7493.html
4. Alian Nejadi, H. (2013). Relationship between financial flexibility and abnormal stock returns of companies listed on the Tehran Stock Exchange. *Master Thesis*, Islamic Azad University, Shahroud Science and Research Campus. (In Persian).
5. Badavar Nehbandi, U. and Taghizadeh Khanghah,. V. (2013). The Relationship between Audit Quality and Investment Efficiency. *Accounting and Auditing Review*, 20(2), pp. 19-42. (In Persian). https://dx.doi.org/10.22059/acctgrev.2013.35523
6. Badghan, H. (2016). The Impact of the Auditor's Mandatory and Optional Change on Stock Liquidity. *Master Thesis*, Imam Reza International University.Mashhad.Iran (In Persian).
7. Ball, R., & Brown, P. (1968). An empirical evaluation of accounting income numbers. *Journal of accounting research*,6(2) 159-178. https://doi.org/10.2307/2490232
8. Chaney, Paul K; Philipich, Kirk L. (2002). Shredded Reputation: The Cost of Audit Failure. *Journal of Accounting Research*, 40(4), 1221-1245.
9. Daneshi, V. (2016). Investigating the effect of Working Capital Investment and Financial Constraints on companies' Abnormal Returns using Fama & French model. *Master Thesis*, Semnan University. (In Persian). https://elmnet.ir/article/10925901-42411
10. Darabi, R. (2016). The Investigation of the Relationship between Capital Structure and Abnormal Returns (Evidence from Tehran Stock Exchange). *Financial Management Strategy*, 4(1), pp. 77-102. (In Persian). https://doi.org/10.22051/JFM.2016.2376
11. Derakhshanian, E. (2016). Investigating the effect of the Auditor's Tenure on Abnormal Returns and the amount of Cash Transactions in combined companies listed on the Tehran Stock Exchange. *Master Thesis*, Islamic Azad University, Kermanshah Branch. (In Persian).
12. Dolatzarei, E. (2019). Auditor Switching and Audit Fee Discounting After Audit Firm

Ranking. *Master Thesis*, Qom University. (In Persian).
13. DeAngelo, L.E. (1981), Auditor Size and Audit Quality, *Journal of Accounting and Economics*, 3(3), 193-199.
14. Emsakpur, H., Kheradyar, S., Homayonfar, M. and Fadaei Eshkiki, M. (2021). The role of quarterly earnings announcements on the relationship between traders' trading speed and cumulative abnormal stock returns. *Financial Knowledge of Securities Analysis*. 13(48), pp. 1-14. (In Persian). https://jfksa.srbiau.ac.ir/article_17456.html
15. Esmaeil zadehe, A. and Beheshti, A. (2016). Investigating the relationship between Abnormal Returns and Financial Ratios in companies listed on the Tehran Stock Exchange. *Master Thesis*, Islamic Azad University, Shahriar Branch. (In Persian). https://elmnet.ir/article/11239619-81452
16. Fama, E. F. and French, K. R. (2018). Choosing factors. *Journal of financial economics*, 128(2), pp. 234-252. https://doi.org/10.1016/j.jfineco.2018.02.012
17. Ghosh, A., Gu, Z. and Jain, P.C. (2005). Sustained Earnings and Revenue Growth, Earnings Quality, and Earnings Response Coefficients. *Review of Accounting Studies*, 10(20), pp. 33–57. https://doi.org/10.1007/s11142-004-6339-3
18. Gibson, C. (2009), Financial reporting & analysis. South-Western Cengage Learning.
19. Ghosh, A.; S. Lustgarten (2006). Pricing of initial audit engagements by large and small audit firms. *Contemporary Accounting Research*, 23(2), pp: 333-368.
20. Hadian, R., Hashemi, A. and Samadi, S. (2017). Evaluating the effect of Financial Constraint Factor on the Ability to Explain stock Returns by three-factor models of Fama & French, four-factor Carhart and five-factor Fama & French. *Quarterly Financial Accounting*, 34(96), pp. 1-34. (In Persian). https://www.sid.ir/fa/Journal/ViewPaper.aspx?id=309190
21. Hagi, R. (2015). Impact of poor profit Quality on Information Asymmetry, *Master Thesis*, Islamic Azad University Tehran Branch. (In Persian).
22. Hatem. B. S. (2015). What Determines Cumulative Abnormal Returns? An Empirical Validation in the French Market. *International Business Research*, 8(12), pp. 89-95. http://dx.doi.org/10.5539/ibr.v8n12p89
23. Herwany, A., Febrian, E., Anwar, M. and Gunardi, A. (2021). The Influence of the COVID-19 Pandemic on Stock Market Returns in Indonesia Stock Exchange. *Journal of Asian Finance, Economics and Business.* 8(3), pp. 39-47. https://doi.org/10.13106/jafeb.2021.vol8.no3.0039
24. Jogiyanto, H.M. (2012), Teori Portofolio dan Analisis Investasi, 7th ed., BPFE Yogyakarta, Yogyakarta.
25. Kauffman, R. J., Spaulding, T. J. and Wood, C. A. (2009). Are Online Action Markets Efficient? An Empirical Study of Market liquidity and Abnormal Returns. *Journal of Decision Support Systems*، 48(1), pp. 1-13. https://doi.org/10.1016/j.dss.2009.05.009
26. Kornberger, M.; Carter, C.; Smith, A. (2010). Changing gender domination in a Big Four accounting firm: Flexibility, performance and client service in practice. *Accounting, Organizations and Society*, 35(8), 775-791.
27. Lindros, B. (2020). An Empirical Study of the Earnings Response Coefficient and Cumulative Abnormal Returns of Finnish Firms. *Master's thesis in accounting Supervisor*: Prof. Ralf Östermark Faculty of Social Sciences, Business and Economics Åbo Akademi University Turku.
28. Malhotra, M. Thenmozhi, M. and Gopalaswamy, A. (2013). Factors Influencing Abnormal

Returns around Bonus and Rights Issue Announcement. *Journal of Applied Finance*. 19(4), pp. 41-60. https://EconPapers.repec.org/RePEc:icf:icfjaf:v:19:y:2013:i:4:p:41-60

29. Muradoğlu, Y. and Sivaprasad, S. (2012). Capital structure and abnormal returns. *International Business Review*, 21(3), 328-341.
30. Nawangsari, F. Y. and Iswajuni, I. (2019).The effects of auditor Switching towards abnormal return in manufacturing company. *Asian Journal of Accounting Research*. 4(1), pp. 157-168. https://doi.org/10.1108/AJAR-05-2019-0040
31. Pour Zamani, Z. and Bashiri, A. (2013). Test the Karhart model to predict expected returns. *Financial Engineering and Portfolio Management*, 4(16), pp. 93-107. (In Persian). http://fej.iauctb.ac.ir/article_511687.html
32. Pourheydari, O., Shahbazi, M. (2009) An Investigation of the Relationship between Market Return, Firm Size and Book-to-Market Value of Equity with Return of Equity in Tehran Stock Exchange. *Empirical Studies in Financial Accounting Quarterly*, 6(24), pp. 35-51. (In Persian). https://qjma.atu.ac.ir/article_4296.html
33. Rashidi Baqhi, M. (2019). The Role of Audit Quality and the Quality of Accounting Information in Changing the Information Asymmetry Pricing. *Journal of Financial Accounting Knowledge*, 6(3), pp. 167-187. (In Persian). https://doi.org/10.30479/JFAK.2019.9892.2370
34. Rezaei, F. and Heidarzade, Sh. (2014). The effect of board credit on the relationship between agency costs and abnormal returns accumulated in more (less) investor companies. *Asset Management and Financing*, 2(2), pp. 103-128. (In Persian). https://doi.org/20.1001.1.23831170.1393.2.2.8.3
35. Rezaei, F.,. Veisi Hesar, S. and Ghandchi, F. (2020). The relationship between Audit Fees and Corporate Growth Opportunities and Abnormal Returns. Journal of Audit Science, 19(76), pp.87-126. (In Persian). http://danesh.dmk.ir/article-2328-1-fa.html
36. Sadati, S. S. (2017). The effect of free cash flows on unusual stock returns considering the effects of leverage or capitalization of companies admitted to Tehran Stock Exchange. *Master Thesis*, Islamic Azad University. Iran. (In Persian).
37. Sadeghi, M., Dastgir, M. and Amiri, H. (2018). Relation of Conditional and Non-conditional Persistence of Earning Components to Abnormal Stock Returns. *Journal of Empirical Research in Accounting*, 7(27), pp. 103-128. (In Persian). https://www.sid.ir/fa/journal/ViewPaper.aspx?ID=350349
38. Sinaei, H., Mahmoudi, A. (2005). Investigating the effect of stock breakdown news and bonus shares on stock returns in Tehran Stock Exchange. *Accounting and auditing reviews*, 12(1), 77-96.
39. Stunda, R. (2012), Auditor switches in a post-sox environment, does the change in auditor mean a
40. change in stock price?, Journal of Business and Behavioral Sciences, Vol. 24 No. 3, pp. 65-71.
41. Suryani, Ani. W.; Pertiwi, Karina. D. (2021). Lombok's Tsunami and Stock Abnormal Returns. *Accounting analysis journal*, 10(1), pp: 1-8. (In Persian).
42. Tanani, M. (2017). The Role of Predicted Abnormal Returns in Profit response coefficient. *Quarterly Financial Accounting*, 9(35), pp. 26-48. (In Persian). https://www.sid.ir/fa/journal/ViewPaper.aspx?id=314819
43. Vadiei, M. and Hoseini, M. (2012). The Relationship between Performance Evaluation Criteria and Abnormal Stock Return. *Journal of Empirical Research in Accounting*, 1(4), pp.

RESEARCH ARTICLE

73-87. (In Persian). https://doi.org/10.22051/JERA.2013.547

How to cite this article:

Zare Bahnamiri, M., Sarlak, N., Beyki, N. (2021). Auditor Switching and Abnormal Returns. Iranian Journal of Accounting, Auditing and Finance, 5(4), 39-53. doi: 10.22067/ijaaf.2021.41022

URL: https://ijaaf.um.ac.ir/article_41022.html

Ferdowsi University of Mashhad

Iranian Journal of
Accounting, Auditing & Finance

Received: 2021-10-06
Accepted after revision: 2021-11-29
Published online: 2021-12-24

RESEARCH ARTICLE DOI: 10.22067/ijaaf.2021.41403

The Effect of Auditors' Characteristics on Relationship between Geographical Diversification and Real Earnings Management

Amir Ghafourian Shagerdi

Faculty of Administrative Sciences, Imam Reza International University, Mashhad, Iran

Seyed Hojjat Saberi Postchi

Department of Accounting, Imam Reza International University, Mashhad, Iran

Abstract

the study investigates the effect of auditors' characteristics on the relationship between geographical diversification and real earnings management in the listed companies on the Tehran Stock Exchange. Thus, 204 companies listed in Tehran Stock Exchange were systematically selected between 2012-2017, and the data were analysed using SPSS 24. This research is applied, and in terms of nature, it is an ex-post-facto research, namely, it is based on past (corporate financial statements) analysis. In this study, examining the positive relationships between geographical diversification and real earnings management were shown, respectively. By measuring the effect of auditor's specialisation on the relationship between geographical diversity and real earnings management, the auditor's expertise's impact has been considered significant, and the second hypothesis was confirmed.

Keywords: Auditor Characteristics, Geographical Diversification, Real Earnings Management

Corresponding author: Amir Ghafourian Shagerdi
Email: *ghafourian@imamreza.ac.ir*

Number of Tables: 7
Number of References: 85
Pages: 21

RESEARCH ARTICLE

1. Introduction

Judgments made by managers and their authority in the financial reporting process is called earnings management. Accounting studies have paid special attention to earnings management and its consequences for many years(Etemadi, Azar and Nazemi Ardakani, 2010). However, the question raised here is whether earnings management improves the quality characteristics of accounting information or reduces its information content. Earnings management literature does not help determine earnings management's desired or undesired effect on the usefulness of accounting information and provides no clear answer(Etemadi, Azar and Nazemi Ardakani, 2010) .The present evidence is contradictory and unsatisfying. One of the main reasons is the lack of research on the various dimensions of the quality of accounting information. Earnings management literature has not provided an accepted definition of earnings management(Etemadi, Azar and Nazemi Ardakani, 2010). Arthur Levitt, the former chairman of the US Securities and Exchange Commission, has defined earnings management in this way: it is an action that makes the reported earnings reflect more the management desires than the company's fundamental financial performance. Schipper (1989) defines earnings management as a purposeful financial reporting intervention to acquire personal benefits. The two definitions focus on the opportunistic aspects of management. It means that management manages the earnings with profit-seeking motivations(Etemadi, Azar and Nazemi Ardakani, 2010). They implicitly suggest that earnings management reduces the information content of accounting numbers. Also, some researchers have an awareness-raising outlook on earnings management and define it as manipulation of earnings numbers by managers through which private and personal information of management on the future company performance is transferred to investors(Etemadi, Azar and Nazemi Ardakani, 2010). We expect that earnings management reduces the information content and helps investors interpret the reported figures better by accepting this definition. However, the opportunistic nature of earnings management is more acceptable in the literature (Jiraporn et al., 2008; Etemadi, Azar and Nazemi Ardakani, 2010).

A diversification strategy is a strategy that causes changes in the products, services, and areas of activity at present. Diversification occurs when the company expands to produce and sell products or launch production lines that have no association with other products in terms of the market (Rumelt, 1982). Dadbeh and Mirzaei Goodarzi(2021) examined the moderating effect of CEO duality on the relationship between geographic diversification and firm performance. They found a positive and significant relationship between geographical diversification and company performance. Due to the increasing complexity of operations and management structure (Nam et al. 2006; 779) and ownership structure (Denis, Denis and Sarin, 1997; 158) and information asymmetry, diversified companies have higher information asymmetry than focused companies. In addition, investigating the earnings report in diversified companies is difficult and requires more expertise and resources for investors and analysts (Thomas, 2002). Increasing asymmetric information prevents investors from discovering manipulated earnings, so managers in diversified companies are more motivated to manipulate the earnings. However, according to the commitment compensation hypothesis, some researchers (such as Jiraporn et al., 2008) argue that in the diversified companies, the accruals resulting from different segments of business have a weak correlation with each other, and this reduces managers' ability to manage earnings (Bustani, 2019). The financial scandals of large companies like Enron, Arthur Anderson, and WorldCom have greatly reduced the users' trust in financial statements. Such scandals and their consequences are the main reason for the quality of the financial statements. Also, the recent

financial crises have led to an increased demand for high-quality auditing. These results may indicate that auditors need to be more vigilant after the recent crises. Auditors are required to respond to events that increase the likelihood that the financial statements will be materially misstated and to conduct the audit in a manner that reduces the audit risk to an appropriately low level (Cassell et al., 2019).

Therefore, audit quality is one factor that enhances the credibility of financial information (Jaggi, Gul and Chiu Lau, 2012). Jensen and Meckling (1976) stated that auditing is crucial in reducing agency costs among managers and shareholders. Auditing is considered a supervisory tool for shareholders because auditors report incorrect cases such as earnings management. Indarti and Widiatmoko(2021) believe that earnings management positively affects the cost of equity capital. Conversely, companies with good audit quality will bear a lower cost of equity capital. In general, auditing is a means for linking auditors and shareholders to show that managers are not looking for opportunistic behaviours. Piot and Janin (2007) argue that auditing is one of the ways to prevent and reduce earnings management because companies believe that the earnings and information content of companies presenting audited financial statements have high quality(Badavar Nahandiand and Taghizadeh, 2013).

Due to the increasing application of various strategies such as diversity strategy in the contemporary period and the importance and results for companies at the international level and the complexity and expansion of transactions due to diversification of the organisation, the position and desire to earnings management and their effects(In diversified companies) have increased. Diversification is a factor to increase information asymmetry and create the tendency for earnings management and any activity that lead to conflicts of interest between management and owners. Auditors play a crucial role in identifying earnings management and increasing the reliability of financial information. The basis of the audit measurement and the level of auditors' activities can be determined according to the audit quality and its relative measurement. Among the factors that affect the quality of the audit and the degree of trust in the financial statements can be the auditor's expertise, tenure and the size of the audit firm. In the field of Geographical Diversification, little researches have been done in Iran. Unfortunately, many studies conducted in Iran have only examined the relationship between diversity and financial variables. Earnings management is also one of these variables that have been researched. What matters is how an auditor's characteristics can affect earnings management in a diversified company; in other words, Can auditors be a deterrent to earnings management in diversified companies? In the present study, we seek to answer two general questions: First, is there a significant relationship between real management and geographical diversification? Awareness of this issue can determine how companies' degree of geographical diversification will affect their real earnings management. Also, in the second question of this study, we examine the impact of auditor’s characteristics on the real earnings management in diverse companies. Investors identify the degree of geographical diversification of the firm, anticipate the likelihood of real earnings management, and invest after knowing the characteristics of the firm's auditor to determine the extent of success of the auditor in controlling the earnings management. This study will continue as follows: first, the theoretical framework of financial literacy research on earnings management and Geographical Diversification and expansion of hypotheses are defined. The research methodology, including research variables and patterns, is presented below. After stating the research results, conclusions will be presented in the final part.

RESEARCH ARTICLE

2. Research Background and Hypothesis

2.1. Geographical Diversity and Earnings Management

Didar, Imani Barandagh and Shahrezaei (2014) show that business diversification has a significant and positive effect on performance and have non-significant and negative effects on the value of studied firms. Moreover, Hemati and Yosefirad (2011)argue a negative and significant relationship between abnormal returns and diversification strategy, but the relationship between abnormal returns and cash holding was not statistically significant. The results also revealed that diversification positively and significantly impacts the relationship between abnormal returns and cash balance. On the other hand, Many diversified companies have information asymmetry and agency problems due to complex operations and information. For example, non-transparency of accounting figures provided by diversified companies leads to information asymmetry between companies and external investors (Gilson et al., 2001; Hadlock, Ryngaert and Thomas, 2001). Also, to investigate the information asymmetry in diversified companies, Burch and Vikram (2003), Denis, Denis and Yost (2002), Doukas and Pantzalis (2003) concluded that diversified companies, compared to single-product companies, have more information asymmetry. Asymmetric information and its impact are more prominent in the capital market. In the trading behaviour of the capital market, there is often a massive conflict of interest, and asymmetric information provides opportunities for fraud and unethical behaviour in pursuit of the interests (Du, Shu and Xia, 2020). One of the significant reasons for information asymmetry in diversified companies may be the lack of information transparency (Thomas, 2002). Trueman and Titman (1988) argue that information asymmetry between company management and company shareholders is essential for earnings management. Vazifedust, Dadbeh and Hashemloo (2014), by examining the Corporate diversification, information asymmetry and firm performance in the Tehran stock exchange, indicate that corporate diversification using entropy influenced information asymmetry and firm performance. Accordingly, information asymmetry in diversified companies provides the necessary conditions for managing earnings and manipulates earnings in multi-product companies. Earnings management in diversified companies involves manipulating accrual and real earnings (Alhadab and Nguyen, 2018). For example, Lim, Thong and Ding (2008), based on a modified model of Jones, showed that discretionary accruals are more in the diversified companies compared to non-diversified companies. Berrill, Campa and O'Hagan-Luff (2021) show that international diversification is associated with greater manipulation of accruals and sales but with lower manipulation of production costs. Moreover, they found strong evidence that the combination of industrial and international diversification increases real activity manipulation but does not affect accrual manipulation. A diversification strategy can be applied through commercial and geographical diversification in the company. Many studies have examined the relationship between commercial and geographic diversification and earnings management. For example, Masud, Anees and Ahmed (2017) showed that commercial diversification and the sum of commercial and geographical diversification reduce earnings management. The study conducted by Dadashzadeh and Baradaran Hasanzadeh is one of the studies investigating this relationship in Iranian stock companies (2017). Dadashzadeh and Baradaran Hasanzadeh (2017) concluded that there was no relationship between artificial earnings management and commercial diversification, and there was a significant and negative relationship between geographical diversification and artificial earnings management. In addition, no association was found between real earnings management and corporate diversification. Shi, Sun and Luo (2014) argue that geographically dispersed firms have lower accrual-based management but higher real earnings management when compared to geographically concentrated firms. Based on the research literature and background, the following hypothesis is

presented:

There is a positive relationship between geographical diversification and real earnings management.

2.2. Industry Expertise, Diversification, and Earnings Management

Most studies consider applying industry-expertise auditors as a factor to enhance the quality of auditing. In fact, by time and financial investments, industry-expertise auditors seek to enhance their aspects (Bell, Peecher and Solomon, 2005). The studies conducted by Kwon (1996) and Libby and Tan (1995) are among the studies conducted on the efficiency of industry-expertise auditors. They realised that experienced or trained auditors act better than un-trained or in-experienced individuals. Industry-expertise auditors increase the likelihood of distortions in financial statements (Hammersley, 2006; Ashton, 1991; Libby and Frederic, 1990). As a result, they improve the quality of financial reporting and consequently the level of trust in financial statements (Hegazy, Sabagh and Hamdy, 2015). Dunn and Mayhew (2004) found that the owners of industry-expertise auditing firms are ranked higher by financial analysts in terms of disclosure quality. This analysts' view compared to industry-expertise auditors highlights the importance and role of this feature in the quality of audits. The industry-expertise auditor is of particular importance from the auditors' perspective so that managers select the industry-expertise auditing companies in their priority to display transparency and their performance and to provide the users with the guarantee of the financial statements (Tate and Feng, 2013). Dunn and Mayhew (2004) showed that the use of industry-expertise auditors has advantages such as reduced costs in the form of low audit fees and the ability to identify incorrect cases compared to non-expertise auditors to modify or report incorrect cases support professional reputation. Feng et al. (2019)argue that individual auditor industry specialisation decreases the risk of price crashes by mitigating earnings manipulation. As a result, there is a positive relationship between industry-expertise auditors and the quality of disclosure of financial statements (Badavar Nahandiand and Taghizadeh, 2013). Many studies have been conducted on the impact of the industry-expertise auditors on earnings management. For example, Krishnan (2003) examined the relationship between industry-expertise auditors and the absolute level of discretionary accruals of business owners. The results showed that business owners who do not use industry-expertise auditors compared to those who do not use industry-expertise auditors who use it have more discretionary accruals. On the other hand, some studies have different outcomes. For example, Mnif and Hamouda (2021) believe that companies may substitute between earnings management strategies and shift from accrual earning Management to Real Earning Management when audited by an industry expert. Lopez and Vega (2019) show that audits performed by firms with longer industry specialist durations are associated with greater levels of real earnings management. Based on the previous studies, this study examines the effect of industry-expertise auditors on real earnings management in geographically diversified companies. Since most of the studies conducted on the industry-expertise auditor and earnings management have focused on non-diversified, there is a research gap in diversified companies. Accordingly, the following hypothesis is presented:

The industry-expertise auditor has a significant negative impact on the relationship between the company's geographical diversification and real earnings management.

2.3. Tenure, Diversification, and Earnings Management

Diversified companies are complex organisations operating in various industries. Accordingly, the auditor needs more time to properly understand the company's activities and performance. Auditor

tenure for auditing the company plays a pivotal role. The auditor would better understand business processes, the company's industrial characteristics, and accounting policies due to having expertise in auditing this type of company. As a result, with increasing the tenure, the auditor avoids incorrect cases and discovers them easily in diversified companies, leading to increased quality of reported information and disclosure quality and reduced agency costs and information asymmetry in diversified companies. Increased audit quality caused by increased tenure has been reported in several studies (Mansi, Maxwell and miller 2004; Gul, Fung and Jaggi 2009; Stanly and DeZoort 2007; Carcello and Nagy 2004; Johnson, Khurana and Reynolds 2002). for example, Jadiyappa et al. (2021)show that Contrary to the objective of mandatory rotations, longer auditor tenure generally enhanced audit quality among Indian firms prior to mandatory rotations. Moreover, Martani et al. (2021)examined the impact of audit tenure and audit rotation on the audit quality: Big 4 vs non-big 4. they believe that the relationship between auditor tenure and audit quality is not significant. Audit firm rotation positively impacts audit quality, and the positive impact is lower in Big 4. In non-Big 4, audit partner rotation does not affect audit quality, but audit firm rotation could improve audit quality. meanwhile, in Big 4, audit partner rotation is sufficient to improve audit quality because they have sufficient partners to perform a quality review

They argue that non-standard audits generally occur in companies where the auditor is unfamiliar with the environment and industry and opposes restrictions on the tenure. However, it should be noted that many views oppose the increase in the auditor's tenure. Therefore, it is not possible to make a definitive decision on the positive or negative impact of tenure on audit quality. Primadita, Fitriany and Kiantara (2021) show that information asymmetry will decrease as tenure increases in the early years of the audit engagement. The longer audit tenure implies that the auditor is more skilled in auditing the company, minimising information asymmetry. However, after 8 years, the information asymmetry will be increased again. As the audit tenure increases, the auditor becomes more familiar with the clients, and the independence and objectivity of auditors might be decreased.

The study results conducted by Bates, Ingram and Reckers(1982) show that auditors' judgment is influenced by the long-term relationships of auditors and business owners. Copley and Doucet (1993) found that non-standard audits increase with increasing tenure. The results of the research conducted by Vanstraelen (2000) suggested that long-term cooperation between auditors and business owners raises the prospect of issuing an acceptable report by auditors. Vanstraelen (2000) suggests that long-term audit and auditor collaborations increase the likelihood of auditors reporting acceptable results. Dopuch, King and Schwartz (2001) concluded that auditors' rotation reduces auditors' willingness to provide biased, irrational reports. Turner, Mock and Srivastava (2002) and Brody and Moscove (1998) argue that restricting an auditor's tenure leads to increased audit quality and prevents the influence of business owners on auditors. Rajabi (2006) reported that the long-term presence of an auditor and the business owners could create the willingness to observe the opinions of the business owner's management. This state disrupts his independence and bias. The common feature of the mentioned studies is restricting and preventing an increase in auditor tenure. Based on these studies, the long-term tenure can significantly impact the quality of an audit and financial statements.

Some studies have also been conducted on the effect of tenure on earnings management. Myers, Myers and Omer (2003) showed that the likelihood of earnings deviation increases in companies with long-term audit tenure. Davis, Soo and Trompeter (2009) found a positive relationship between audit tenure and level of non-normal accruals. Karami, Bazrafshan and Mohammadi (2011) showed that management flexibility in discretionary accruals increased as the auditor tenure increased. Management uses the created flexibility in the negative direction. Thus, according to this study's results, it can be stated that the long-term relationship between the business owner and the auditor

increases the flexibility of management to use discretionary accruals, but this is used more to reduce conservative earnings. Jabarzadeh Kangarluei, Namazi and Bayazidi (2011) investigated the relationship between audit size and auditor tenure and earnings management. The results investigated the relationship between the independent variables (audit size and auditor tenure) and earnings management, and they found a significant and positive relationship between earnings management and auditor tenure. KashaniPoor, Maranjory and Moshashaee (2012) showed a positive and significant relationship between discretionary accruals and audit tenure. Azizkhani and Safarvandi (2012) examined the effect of audit tenure on the predicted earnings error in the listed companies in the Tehran Stock Exchange. The results show that the accuracy of the predicted earnings of management increases in the early years of the tenure (fewer prediction errors) and then decreases (more prediction errors). Finally, considering the relationship between tenure and earnings management and the impact of tenure on audit quality, this study examines the effect of the characteristics of the auditor on the earnings manipulation in geographically diversified companies to reveal whether 4-years or more tenure in different companies leads to increased real earnings management or not. Based on the previous studies conducted on auditor tenure, the final hypothesis of the research is presented as follows:

The auditor tenure has a significant positive impact on the relationship between the company's geographical diversification and real earnings management.

2.4 Auditor Size, Diversification, and Earnings Management

Audit quality, which is recognised by various indicators, can significantly reduce information asymmetry and solve the problems caused by conflicts of interest between managers and owners and any manipulation of financial statements and data. Several studies have been conducted by Becker et al. (1998) on the role of auditors in reducing errors and enhancing the quality of reported information. Audit quality includes input criteria such as the auditor size, tenure, industry-expertise auditor, auditor independence, and auditor fee. This article addresses three indicators and considers them as auditor characteristics. Biddle, Hilary and Verdi (2009) and Biddle and Hilary (2006) have shown that by providing high-quality financial information, it is possible to reduce the information symmetry between diversified companies and the investors and allow the investors to predict the real value of the diversified company more accurately. Many investigations have been conducted on the relationship between audit size and audit quality and the impact of auditor size on the prevention and or disclosure of earnings management. In his research entitled “the size of the auditor company and the auditor quality, DeAngelo (1981) stated that larger audit firms have a stronger motivation to provide higher quality audits since larger companies are interested in acquiring a better reputation in the market. As they worry about losing the customers because of the large number of customers, such institutions are thought to provide higher quality auditing services because of having access to more resources and facilities for training their auditors and performing various tests. De Angelo is one of those who investigated auditor size and its relationship with audit quality for the first time. Lam and Chang (1994) found that large audit firms do not necessarily provide better audit quality than small audit firms. Louis (2004) investigated the relationship between audit firms' service quality and auditor size and found that large audit firms do not always provide better services than smaller ones. Abubakar et al. (2020)argue that audit firm size has a positive and significant impact on earnings management. Nonahal Nahr, Alinejad Sarookalaei, and Khezri (2012) found that larger audit firms had more control over earnings management by adding control variables. They also found that tenure has a negative impact on earnings management. Also, some other studies have found a negative

relationship between company size and earnings management, indicating that large audit firms can reduce earnings management and leverage audit quality. Abbasiazadeh and Zamanpour (2016) examined the impact of auditor size on earnings management in Tehran Stock Exchange companies and found that company size had a significant negative impact on earnings management. Abdollahi, Rezaei Pitenoei and Safari Gerayli (2020) show that auditor's report and audit firm size is positively and significantly correlated with two indicators of accounting information's value relevance, including value relevance of earnings and book value per share. Chowdhury and Eliwa(2021) find that the presence of Big 4 auditors is significantly and positively related to greater levels of sales and discretionary expenses manipulation. Though they do not find any conclusive evidence on production costs manipulation, the aggregated measure of real earnings management shows a significant positive association with the presence of Big 4 auditors. The study conducted by Fatahi and Fazel (2018) showed that with increasing audit quality, earnings management decreases, and auditor's independence and audit firm size were more effective than other components. Based on the results of previous studies, the fourth hypothesis can be presented as follows:

The size of the auditor firm has a significant negative impact on the relationship between the company's geographical diversification and real earnings management

3. Research Methodology

This study is applied research in terms of objective. Applied research uses fundamental research to improve and complete human communities' behaviours, methods, tools, products, structures, and models. In addition, applied research uses theories, rules, principles, and techniques to solve executive problems. The method used in this study is a correlational-descriptive method. The reason for using the correlation method is to discover the correlations among the variables. Correlational research is one type of descriptive research. In addition, the present research is a post hoc study, meaning that it is performed based on past analysis (financial statements of companies).

3.1. Statistical Population and Sampling Method

The statistical population of this research is the listed companies in Tehran Stock Exchange(listed and OTC companies)in 2012-2017. The statistical sample is collected through elimination based on Table 1.

Table 1. The sample of the study

Row	Description	Number of companies	Number of observations
1	Listed companies in Stock Exchange at the end of 2017	510	2169
2	Companies that their information is not available	239	889
3	Companies that are among the intermediary, financial, insurance, and bank organisations	63	140
4	Transaction lag for more than 3 months	4	53
	Remaining companies	204	1087

Finally, 1087 observations from 204 companies were tested.

3.2. Model and Definitions of Research Variables

3.2.1. Research Models

The following equation is used to determine the relationship between real earnings management

and geographical diversification (Lai and Liu, 2018):

$$RMi,t = \beta0 + \beta1GDIVFYi,t + \beta2LAGACCRUALi,t + \beta3CYCLEi,t + \beta4PROFITi,t + \beta5SIZEi,t + \beta6LEVi,t + \beta7MBi,t + \beta8LOSSi,t + \beta9INST + \beta10CFOi,t + \Sigma\beta jINDUSTRYj + \Sigma\beta tYEARt + \nu i,t$$

The following model is used to investigate the Hypotheses 2, 3, and 4:

$$RMi,t = \beta0 + \beta1GDIVFYi,t + \beta2TENUREi,t + \beta3EXPERTi,t + \beta4AUDITSIZEi,t + \beta5GDIVFYi,t \times TENUREi,t + \beta6GDIVFYi,t \times EXPERTi,t + \beta7GDIVFYi,t \times AUDITSIZEi,t + \beta8LAGACCRUALi,t + \beta9CYCLEi,t + \beta10PROFITi,t + \beta11SIZEi,t + \beta12LEVi,t + \beta13MBi,t + \beta14LOSSi,t + \beta15INST + \beta16CFOi,t + \Sigma\beta jINDUSTRYj + \Sigma\beta tYEARt + \nu i,t$$

3.2.1.1 Dependent Variable

RM= Real earnings management

The following three indicators are used to determine the real earnings management:

$$CFOi,t/ASSETSi,t-1 = \alpha0t\ (1/ASSETS\ i,t-1) + \alpha1t\ (SALESi,t/ASSETS\ i,t-1) + \alpha2t\ (\Delta SALESi,t/ASSETSi,t-1) + \varepsilon AbnCfo$$

$$DISXi,t/ASSETSi,t-1 = \alpha0t\ (1/ASSETS\ i,t-1) + \alpha1t\ (SALESi,t-1/ASSETS\ i,t-1) + \varepsilon AnbDexp$$

$$Prodcsti,t/ASSETSi,t-1 = \alpha0t\ (1/ASSETS\ i,t-1) + \alpha1t\ (SALESi,t/ASSETS\ i,t-1) + \alpha2t\ (\Delta SALESi,t/ASSETSi,t-1) + \alpha3t\ (\Delta SALESi,t-1/ASSETSi,t-1) + \varepsilon AbnProd$$

The remaining value of each indicator reflects the real earnings management based on that indicator.

CFOi, t = Operating cash flow in period t

ASSETSi, t-1 = Total assets at the end of the previous year

ΔSALESi, t = Changes in sales during the year

ΔSALESi, t-1 = Changes in sales in the previous year

SALESi, t = Sales at the end of year

SALESi, t-1 = Sales in the last year

DISXi, t = Discretionary expenditures in the period of t = total public and administrative expenditures, sales and advertising, and research and development.

PRODCSTi, t = Production costs in the year t - Total cost of the sold goods and changes in inventory of goods (Ge and Kim, 2014).

3.2.1.2. Independent Variable

GDIVFY = Geographical Diversification = the ratio of export sales to total sales (Schmid and Walter, 2012)

3.2.1.3. Moderating Variables

Industry-expertise auditor: The level of auditor's expertise in the audit industry is calculated in this way: the sum of the assets of all business owners of a particular audit firm in a particular industry divided by the sum of the assets of the business owners in this industry. Those firms are considered as a specialised industry in this research that their market shares (i.e. the above equation) are greater than [1.2x 1/number of the companies in an industry)] (Palmrose, 1986).

Auditor tenure: The number of consecutive years of auditing a company by an auditor. If the auditor is auditing a company for 4 years or more, it will take a value of 1; otherwise, it will take 0 (Pezeshkian and Hosseini, 2017).

Audit firm size: If the audit firm is an audit organisation, it will take the value of 1; otherwise, it will take 0 (Hajiha and Ghane, 2016).

3.2.1.4. Control Variables

LAGACCRUAL = Accruals of the previous year divided by total assets at the beginning of the previous year.

CYCLE = It is the sale period and purchase of the goods and then receiving the cash. The operating cycle in this study is obtained by summing up a turnover period of inventory and the period of claims receivable. These ratios indicate that to what extent the firm is applying its resources effectively. This value is obtained by the formulas provided.

1- Inventory turnover ratio = ratio of the total cost of sold goods to average inventory

Inventory turnover period = 360 divided by the inventory turnover ratio

2- Ratio of accounts receivable turnover = sales divided by the average of accounts receivable

Period of claims receivable = 360 divided by the ratio of accounts receivable turnover

Cycle= invt+Rect= period of claims receivable+ period of inventory turnover (Hoitash, Markelevich and Barragato, 2007).

SIZE = Natural logarithm of company share market value obtained by multiplying the number of shares at the current price of each share in the market (Sun and Liu, 2013).

PROFIT = Profitability of a company calculated by net profit before tax divided by total assets.

LEV = Company financial leverage = ratio of total debts to total corporate assets. This variable specifies what portion of a company's assets is financed by people other than business unit owners.

MB = ratio of the market value of equity to book value of equity

LOSS = Indicates the loss of the company. If the company (for the financial period t) has reported a loss, it will take the value of 1; otherwise, it will take 0.

INST = ratio of shares held by institutional owners (banks, insurances, holdings, investment companies, pension funds, investment funds, government agencies, and institutions) to total issued shares

CFO = cash resulting from operations divided by total assets

4. Results

4.1. Descriptive Statistics

Based on the results of Table 2, the dependent variable of this research (real earnings management) includes three indicators of cash flows with a mean of 0.13, discretionary expenditures with a mean of 0.033, and total cost with a mean of 0.132. These numbers were more than their relevant median, indicating that the companies with real earnings management in the sample were more than 50%. In addition, the dependent variable of this research is geographical diversification, with a mean of 0.10. In addition, three moderating variables are related to the auditor’s characteristics, which, respectively, represent the industry-expertise auditor, tenure, and size. The audit firm variable has a mean of 0.2 and indicates that about 20% of companies have auditors who have audited for more than 4 years. In addition, the auditor's size with a mean of 0.188 indicates that the audit organisation audits about 19% of the sample companies. Concerning control variables, it is seen that earnings before interest and tax account for about 10% of assets of companies and debt of companies to assets is 66%. The market to book equity ratio is about 2.5, and 18% of sample companies experience loss. Institutional shareholders also have a mean of about 28%.

RESEARCH ARTICLE

Table 2. The descriptive Statistics Indicators of Research Model Variables

Operating definition	Symbol	Mean	Median	SD	Min	Max
Real earnings management (Cash Flows)	RMCFO	0.113	0.081	0.114	0.000	1.008
Real earnings management (discretionary expenditures)	RMDISX	0.033	0.024	0.036	0.000	0.439
Real earnings management (total cost)	RMPRODCOST	0.132	0.102	0.131	0.000	1.566
Geographical diversification	GDIVFY	0.100	0.007	0.188	0.000	1.000
Goods purchase and sale period	CYCLE	2.407	2.401	0.378	1.051	6.370
Company profitability	Proft	0.097	0.081	0.189	-1.822	0.811
Company size	Size	13.863	13.814	1.585	9.340	19.190
Company financial leverage	LEV	0.660	0.616	0.324	0.197	1.978
The ratio of market value to book value	MB	2.396	2.198	1.761	-1.104	8.489
Percentage of institutional shareholders	Inst	0.277	0.148	0.310	0.000	0.991
Operating cash flow	CFO	0.115	0.095	0.138	-0.387	0.873
Accruals of previous year	LagAcrual	0.028	0.011	0.168	-0.609	1.178
Industry-expertise auditor	AEXPERTISE	0.365	0.000	0.482	0.000	1.000
Auditor tenure	ATENURE	0.200	0.000	0.400	0.000	1.000
Auditor size	ASIZE	0.188	0.000	0.391	0.000	1.000
Company loss	Loss	0.178	0.000	0.383	0.000	1.000

4.2. Normality of Research Variables

Table 3. The normality of Research Variables

Variable	Symbol	Kolmogorov-Smirnov test statistic	Significance
Real earnings management (Cash Flows)	RMCFO	0.161	.000
Real earnings management (discretionary expenditures)	RMDISX	0.192	.000
Real earnings management (total cost)	RMPRODCOST	0.157	.000
Geographical diversification	GDIVFY	0.298	.000
Goods purchase and sale period	CYCLE	0.080	.000
Company profitability	Proft	0.126	.000
Company size	Size	0.088	.000
Company financial leverage	LEV	0.125	.000
The ratio of market value to book value	MB	0.133	.000
Percentage of institutional shareholders	Inst	0.185	.000
Operating cash flow	CFO	0.091	.000
Accruals of the previous year	LagAcrual	0.077	.000

As the results of Table 3 show, none of the variables in the study followed the normal distribution (the significance of the Kolmogorov-Smirnov test was below 5% in all variables).

4.3. Results of Testing Hypothesis:

The primary research model was used as the basis for testing the first hypothesis, and the following result was obtained:

Hypothesis 1: There is a significant positive relationship between the company's geographical

diversification and real earnings management.

Table 4. Test Results of the First Research Hypothesis (Dependent Variable: Real Earnings Management)

Variable	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
	Cash flows		Discretionary expenditures		Production costs	
C	.032	0.453	.022	0.127	.017	0.727
GDIVFY	.036	0.058	.023	0.000	.024	0.259
CYCLE	.015	0.163	-.007	0.058	.023	0.056
Proft	.287	0.000	.012	0.263	.398	0.000
Size	-.002	0.534	.000	0.740	-.004	0.190
LEV	.047	0.001	.017	0.001	.077	0.000
MB	.002	0.324	.001	0.320	.004	0.093
Loss	.045	0.000	-.004	0.235	.080	0.000
Inst	-.011	0.331	-.014	0.000	-.031	0.014
CFO	.118	0.000	.013	0.152	.106	0.001
LagAcrual	-.034	0.112	.005	0.450	.009	0.722
∑IND	Controlled		Controlled		Controlled	
∑YEAR	Controlled		Controlled		Controlled	
Statistic F	10.121		4.863		11.040	
Significance of statistic F	0.000		0.000		0.000	
Coefficient of determination	0.223		0.121		0.239	
Adjusted coefficient of determination	0.201		0.096		0.217	

Table 4 shows the results of testing the first hypothesis using the dependent variable of real earnings management. It can be seen that the significant value of the Fisher statistic in all three models is 0.000, which suggests a linear and appropriate fitness of the model. The adjusted coefficient of variation indicates that the independent variables account for about 22, 12 and 23% of the dependent variables. In addition, the variables of year and industry have controlled the fixed effects of year and industry. However, with regards to the main independent variable, namely geographical diversification, it is observed that there is a significant relationship between this variable and real earnings management using cash flows and discretionary expenditures with a significant value of 0.058 and 0.000, respectively, and the first hypothesis is confirmed using these two indicators. In addition, the direction of the relationship is positive, and with increasing diversification, the real earnings management is also increasing.

To investigate the second to the fourth hypothesis, by applying the moderating variables, the second model is used, and the following results are observed:

Hypothesis 2: Industry-expertise auditor significantly negatively impacts the relationship between geographical diversification and real earnings management.

RESEARCH ARTICLE

Table 5. Test Results of the Second Research Hypothesis (Dependent Variable; Real Earnings Management, Independent Variable; Industry-Expertise Auditor)

Variable	Coefficients	Significance	Coefficients	Significance	Coefficients	Significance
	Cash flows		discretionary expenditures		Production costs	
C	.022	0.634	.046	0.003	.055	0.294
GDIVFY	.007	0.767	.002	0.804	-.032	0.211
AEXPERTISE	-.021	0.016	.000	0.872	-.014	0.157
AEXPERTISEGDIVFY	.083	0.024	.064	0.000	.168	0.000
CYCLE	.015	0.153	-.007	0.048	.023	0.056
Proft	.282	0.000	.010	0.311	.393	0.000
Size	.000	0.897	-.001	0.136	-.006	0.063
LEV	.048	0.001	.015	0.002	.074	0.000
MB	.002	0.365	.001	0.217	.004	0.077
Loss	.045	0.000	-.004	0.280	.081	0.000
Inst	-.007	0.500	-.013	0.000	-.028	0.028
CFO	.112	0.000	.009	0.322	.095	0.002
LagAcrual	-.030	0.166	.005	0.495	.010	0.671
∑IND	Controlled		Controlled		Controlled	
∑YEAR	Controlled		Controlled		Controlled	
Statistic F	9.790		5.670		10.996	
Significance of statistic F	0.000		0.000		0.000	
Coefficient of determination	0.229		0.147		0.250	
Adjusted coefficient of determination	0.206		0.121		0.228	

According to Table 5, the significant value of the Fisher statistic in all three models is 0.000, which suggests a linear and appropriate fitness of the model. The adjusted coefficient of variation indicates that the independent variables account for about 23, 15 and 25% of the dependent variables. In addition, the variables of year and industry have controlled the fixed effects of year and industry. However, concerning the main independent variable, namely geographical diversification and industry-expertise auditor, the significance value related to all three models of real earnings management was at the error level of 5%. The second hypothesis is confirmed using all three indicators. In addition, the direction of the relationship is positive. In other words, with increasing geographical diversification, the real earnings management is also increasing.

Hypothesis 3: The auditor tenure has a significant positive impact on the relationship between the geographical diversification of the company and the real earnings management.

According to Table 6, the significant value of the Fisher statistic in all three models is 0.000, which suggests a linear and appropriate fitness of the model. The adjusted coefficient of variation indicates that the independent variables account for about 25, 12 and 24% of the dependent variables. However, regarding the main independent variable, the interactive effect of geographical diversification and the auditor tenure, the significance value of all three models of real earnings management is above the 5% error level, and these indicators do not confirm the third hypothesis.

Hypothesis 4: Auditor size significantly negatively impacts the relationship between company geographical diversification and real earnings management.

RESEARCH ARTICLE

Table 6. The Results of Testing the Third Hypothesis (Dependent Variable: Real Earnings Management, Independent Variable: Audit Tenure)

Variable	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
	Cash flows		discretionary expenditures		Production costs	
C	.029	0.500	.022	0.124	.015	0.762
GDIVFY	.036	0.082	.022	0.002	.015	0.524
ATENURE	-.014	0.126	-.001	0.820	-.023	0.027
ATENUREGDIVFY	.004	0.917	.006	0.666	.055	0.251
CYCLE	.015	0.153	-.007	0.058	.023	0.052
Proft	.287	0.000	.012	0.262	.399	0.000
Size	-.001	0.621	.000	0.743	-.003	0.239
LEV	.048	0.001	.017	0.001	.079	0.000
MB	.002	0.321	.001	0.334	.004	0.103
Loss	.045	0.000	-.004	0.239	.080	0.000
Inst	-.009	0.418	-.014	0.000	-.029	0.021
CFO	.120	0.000	.013	0.152	.108	0.000
LagAcrual	-.033	0.126	.006	0.441	.011	0.647
∑IND	Controlled		Controlled		Controlled	
∑YEAR	Controlled		Controlled		Controlled	
Statistic F	9.579		4.557		10.535	
Significance of statistic F	0.000		0.000		0.000	
Coefficient of determination	0.255		0.122		0.242	
Adjusted coefficient of determination	0.202		0.095		0.219	

Table 7. The Results of Testing the Fourth Research Hypothesis (Dependent Variable: Real Earnings Management, Independent Variable: Auditor Size)

Variable	Coefficient	Significance	Coefficient	Significance	Coefficient	Significance
	Cash flows		discretionary expenditures		Production costs	
C	.013	0.772	.020	0.167	.004	0.932
GDIVFY	.043	0.032	.025	0.000	.025	0.285
ASIZE	-.011	0.274	.001	0.815	-.013	0.259
ASIZEGDIVFY	-.041	0.350	-.011	0.435	.002	0.965
CYCLE	.015	0.141	-.007	0.060	.024	0.050
Proft	.286	0.000	.012	0.263	.397	0.000
Size	.000	0.962	.000	0.680	-.003	0.364
LEV	.049	0.001	.017	0.001	.079	0.000
MB	.002	0.307	.001	0.310	.004	0.091
Loss	.044	0.000	-.004	0.220	.080	0.000
Inst	-.007	0.531	-.014	0.000	-.028	0.029
CFO	.115	0.000	.013	0.160	.104	0.001
LagAcrual	-.033	0.130	.006	0.437	.010	0.696
∑IND	Controlled		Controlled		Controlled	
∑YEAR	Controlled		Controlled		Controlled	
Statistic F	9.617		4.572		10.393	
Significance of statistic F	0.000		0.000		0.000	
Coefficient of determination	0.226		0.122		0.240	
Adjusted coefficient of determination	0.202		0.095		0.217	

DOI: 10.22067/ijaaf.2021.41403

RESEARCH ARTICLE

According to the results of Table 7, it is observed that the significant value of the Fisher statistic in all three models is 0.000, indicating the linear and appropriate fitness of the model. The adjusted coefficient of variation indicates that the independent variables account for about 22, 12 and 24% of the dependent variables. In addition, the year and industry variables have controlled the fixed effects of year and industry.

However, regarding the main independent variable, the interactive effect of geographical diversification and auditor size, the significance of all three models of real earnings management is above the 5% error level, and the fourth hypothesis is not confirmed by these indicators.

5. Discussion and Conclusion

Researchers have extensively investigated the audit quality and the factors that may affect this feature to test the effect of audit quality on other financial variables. Earnings management is among these variables, resulting in the separation of management and ownership and the conflict of interests in this area. The relationship between audit quality and earnings management has always been discussed. In this study, the tenure, auditor size, and industry-expertise auditor were evaluated to examine the impact of these variables on the relationship between geographical diversification and real earnings management. DeAngelo (1981) argues that large audit firms can train more efficient and skilled auditors due to their available resources. As a result, greater audit quality can be expected in audits performed by large audit firms. Industry expertise also increases with enhancing the auditor's knowledge of a particular industry's standards, financial events, and environmental conditions, leading to increased audit quality and discovering distortions and manipulation in earnings management. There are two views on auditor tenure. Some believe that an increase in tenure will target the auditor's independence and direct his/her reports. As a result, they agree with the mandatory rotation of the auditors. Some argue that increasing the tenure increases the auditor's familiarity with the business owner, thus increasing the likelihood of discovering the existing distortions. Unlike the first group, they oppose the mandatory audit rotation.

Although there is a positive relationship between geographical diversification and real earnings management, according to the primary hypothesis, which predicted a positive relationship between geographical diversification and real earnings management, companies with more exports, such as oil companies, manage more real earnings than other companies. Because of this real earnings management, discovering the manipulation will be difficult, and the investor should analyse the current risks and profits based on his/her utility chart. The result obtained from the primary hypothesis is consistent with the results of the studies by Shi, Sun, and Lu (2014), Alhadab and Nguyen(2018) and Berrill, Campa and O'Hagan-Luff (2021). They believe that Earnings management in diversified companies involves manipulating real earnings management. The result is also inconsistent with the study result by Bustani (2019), who showed that geographical and commercial diversification alone did not significantly impact real earnings management. Many studies have reported that using an auditor specialising in the industry leads to increased auditing quality. Thus, the second hypothesis, in companies where industry-expertise auditors are auditing, the ability to discover and manipulate the real earnings by industry-expertise auditor decreases by increasing geographical diversification is confirmed, and contrary to the prediction of the second hypothesis, the auditor's expertise has a positive effect on the relationship between geographic diversity and the earnings management. This result is consistent with the results of Lopez and Vega (2019) which found that audits performed by firms with longer industry specialist durations are associated with greater levels of real earnings management, and Mnif and Hamouda (2021), which show that companies may substitute between

earnings management strategies and tend to shift from accrual earning Management to Real Earning Management when audited by an industry expert. As a result, the industry expertise of an author as one of the auditor's characteristics lacks sufficient credibility to ensure transparency and to achieve the appropriate audit quality in the financial statements of diversified companies. Hence, using merely an industry-expertise auditor does not ensure tolerating a lower risk of earnings manipulation. The direction of impact is also opposed to what was predicted (negative impacts). Investors need to be more sensitive to investing in companies whose auditors are industry experts.

6. Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

References

1. Abbasiazadeh, L. and Zamanpour, A. (2016). Investigation of the effect of audit size on Earnings Management in the Tehran stock exchange.
2. Abdollahi, A., Rezaei Pitenoei, Y. and Safari Gerayli, M. (2020). Auditor's report, auditor's size and value relevance of accounting information. Journal of Applied Accounting Research, 21(4), pp. 721-739. https://doi.org/10.1108/JAAR-11-2019-0153
3. Abubakar, a., Mazadu, s. A. and Yusuf, A.M. (2020). Audit quality and earnings management of listed insurance companies in Nigeria. Gusau journal of accounting and finance, 1(1), pp. 14-14 https://journals.gujaf.com.ng/index.php/gujaf/article/view/13
4. Alhadab, M. and Nguyen, T. (2018). Corporate diversification and accrual and real earnings management: A non-linear relationship. Review of Accounting and Finance. 7(2), pp. 198-214. https://doi.org/10.1108/RAF-06-2016-0098
5. Ashton, D.J. (1991). corporate financial policy: American analytics and UK taxation. Journal of Business Finance & Accounting, 18(4), pp. 465-482. https://doi.org/10.1111/j.1468-5957.1991.tb01116.x
6. Azizkhani, M. and Safarvandi, A. (2012). Investigating the impact of audit tenure on predicted earnings error in Listed Companies in Tehran Stock Exchange. Accounting and Auditing Studies, 19(69), pp. 61-78. https://www.sid.ir/fa/journal/ViewPaper.aspx?id=201011
7. Badavar Nahandi, Y. and Taghizadeh, W. (2013). The relationship between audit quality and artificial and real earnings management. Applied Research in Financial Reporting, 2(2), pp. 47-79. http://www.arfr.ir/article_51271.html
8. Bates, H., Ingram, R. and Reckers, P. (1982). Auditor-client affiliation: The impact on"materiality. Journal of Accountancy, 153 (000004), pp. 60-63. https://www.proquest.com/openview/12dd0154541417f8cfadfc5b70710d7f/1.pdf?pq-origsite=gscholar&cbl=41064
9. Becker, C.L., Defond, M.L., Jiambalvo, J. and Subramanyam, K. (1998). The Effect of Audit Quality on Earnings Management. Contemporary Accounting Research, 15(1), pp.1-24. https://doi.org/10.1111/j.1911-3846.1998.tb00547.x
10. Bell, T., Peecher, M.E. and Solomon, I. (2005). Bell, T. B., Peecher, M. E., & Solomon, I. (2005). The 21st-century public company audit: conceptual elements of KPMG's global audit methodology. New York: KPMG International. https://pages.business.illinois.edu/accountancy/wp-content/uploads/sites/12/2014/08/monograph2. pdf
11. Berrill, J., Campa, D. and O'Hagan-Luff, M. (2021). Firm diversification and earnings

management strategies: European evidence. International Review of Financial, 78(1). 101955. https://doi.org/10.1016/j.irfa.2021.101955

12. Biddle, G.C., Hilary, G. and Verdi, R.S. (2009). How does financial reporting quality relate to investment efficiency?. Journal of Accounting and Economics, 48(2–3), pp. 112–131. https://doi.org/10.1016/j.jacceco.2009.09.001
13. Biddle, G.C. and Hilary, G. (2006). Accounting quality and firm-level capital investment. The Accounting Review, 81(5), pp. 963–982. https://doi.org/10.2308/accr.2006.81.5.963
14. Brody, R.G. and Moscove, S.A. (1998). Mandatory auditor rotation. National Public Accountant 43, 32-36.
15. Burch, T.R. and Vikram, N. (2003). Divisional diversity and the conglomerate discount: evidence from spinoffs. Journal of Financial Economics, 70(1), pp. 69-98.
16. Bustani, H. (2019). Impact of diversification strategy on earnings management. Financial Accounting Knowledge, 6(2), pp. 215-234. https://jfak.journals.ikiu.ac.ir/article_1766.html
17. Carcello, J.V. and Nagy, A.L. (2004). Audit firm tenure and fraudulent financial reporting. A Journal of Practice & Theory, 23(2), pp. 55–69. https://doi.org/10.2308/aud.2004.23.2.55
18. Cassell, C, Hunt, E. Narayanamoorthy, G. and Rowe, S. (2019). A Hidden Risk of Auditor Industry Specialization: Evidence from the Financial Crisis. 24(3), pp. 891-926. https://ssrn.com/abstract=3174931
19. Chowdhury, S.N. and Eliwa, Y. (2021). The impact of audit quality on real earnings management in the UK context. International Journal of Accounting & Information Management, 29(3), pp. 368-391. https://doi.org/10.1108/IJAIM-10-2020-0156
20. Copley, P. and Doucet, M.S. (1993). Auditor Tenure, fixed Fee Contracts, and the Supply of Substandard Single Audits. Public Budgeting & Finance, 13(3), pp.23– 36. https://doi.org/10.1111/1540-5850.00980
21. Dadashzadeh, G.H. and Baradaran Hasanzadeh, R. (2017). The relationship between company diversification strategy and the real and artificial real management phenomenon. Empirical Accounting Research, 7 (3), pp. 181-200. https://jera.alzahra.ac.ir/article_2946.html
22. Dadbeh, F. and mirzae goodarzi, Z. (2021). The study of the moderating effect of CEO duality on the relationship between geographic diversification and firm performance. Journal of Accounting and Management Vision, 2(39), pp. 39-52. http://www.jamv.ir/article_130212_e951ca15bdd52014320a3119d27474be.pdf
23. Davis, L.R., Soo, B.S. and Trompeter, G.M. (2009). Auditor Tenure and the Ability to Meet or Beat Earnings Forecasts. Contemporary Accounting Research, 26(2) pp. 48-517. http://dx.doi.org/10.2139/ssrn.1014601
24. DeAngelo, L.E. (1981). Auditor Size and Audit Quality. Journal of Accounting and Economics, 3(3). pp. 183-199. https://doi.org/10.1016/0165-4101(81)90002-1
25. Denis, D.J., Denis, D.K. and Sarin, A. (1997). Agency problems, equity ownership, and corporate diversification. The Journal of Finance, 52(1), pp. 135–160. https://doi.org/10.1111/j.1540-6261.1997.tb03811.x
26. Denis, D.J, Denis, D.K. and Yost, K. (2002). Global diversification, industrial diversification, and firm value. Journal of Finance, 57 (5), pp. 1951-1979. https://doi.org/10.1111/0022-1082.00485
27. Didar, H., Imani barandagh, M. and shahrezaei, S. (2014). Business diversification effects on performance and value of listed companies in Tehran stock exchange. Journal of asset management and financing, 2(5), pp. 65-86.

Https://www.sid.ir/en/journal/viewpaper.aspx?id=574734
28. Dopuch, N., King R.R. and Schwartz, R.(2001). An experimental investigation of retention and rotation requirements. Journal of Accounting Research, 39(1), pp. 93-117.
29. Doukas, J.A. and Pantzalis, C. (2003). Geographic diversification and agency costs of debt of multinational firms. Journal of Corporate Finance, 9(1), pp. 59-92.
30. Du, P., Shu, H. and Xia, Z. (2020). The Control Strategies for Information Asymmetry Problems Among Investing Institutions, Investors, and Entrepreneurs in Venture Capital. Front. Psychol. 11:1579. doi: 10.3389/fpsyg.2020.01579
31. Dunn, K. and Mayhew, B.W. (2004). Audit firm industry specialisation and client disclosure quality. Review of Accounting Studies, 9(1), pp. 35-58.
32. Vazife Dust, H., Dadbeh, F. and Hashemloo, F. (2014). Corporate diversification, information asymmetry and firm performance: Evidence from Tehran Stock Exchange. Management Science Letters, 4(2), pp. 315-324.
33. Etemadi, H., Momeni, M. and Farajzadeh Dehkordi, H. (2012). How does earnings management affect company earnings quality?. Financial Accounting Research, 4(2), pp. 101-122.
34. Etemadi, H., Azar, A. and Nazemi Ardakani, M. (2010). Investigating the role of industry expertise auditor on real earnings management and future operating performance. Research Journal of Accounting Knowledge, 1(1), pp. 9-28.
35. Fatahi Nafchi, H. and Fazel Dehkordi, A. (2018). The impact of audit quality on earnings management based on accruals and real earnings management of listed companies in the Tehran Stock Exchange. Accounting and Management Perspectives, 1(2), pp. 68-82.
36. Feng, H., Habib, A., Huang, H.J. and Qi, B.L. (2019). Auditor industry specialisation and stock price crash risk: individual-level evidence. Asia-Pacific Journal of Accounting & Economics, 28(4), pp. 427–453. doi:10.1080/16081625.2019.1584859
37. Ge, W. and Kim, J.B. (2014). Real earnings management and the cost of new corporate bonds. Journal of Business Research, 67(4), pp. 641-647.
38. Gilson, S.C., Healy, P.M., Noe, C.F. and Palepu, K.G. (2001). Analyst specialisation and conglomerate stock breakups. Journal of Accounting Research, 39(3), pp. 565–582.
39. Gul, F., Fung, Y.K. and Jaggi, B. (2009). Earnings quality: Some evidence on the role of auditor tenure and auditors' industry expertise. Journal of Accounting and Economics, 47(3), pp. 265– 287.
40. Hadlock, C., Ryngaert, M. and Thomas, S. (2001). Corporate structure and equity offerings: Are there benefits to diversification?. Journal of Business, 74(4) pp. 613–635.
41. Hajiha, Z. and Ghane, A. (2016). investigating the impact of audit quality on investment opportunity of listed Companies in Tehran Stock Exchange. Audit knowledge, 16(63), pp. 103-127.
42. Hammersley, J.S. (2006). Pattern identification and industry-specialist auditors. The Accounting Review, 81(2), pp. 309-336.
43. Hegazy, M., Al Sabagh, A. and Hamdy, R. (2015). The effect of audit firm specialisation on earnings management and quality of audit work. Journal of Accounting and Finance, 15(4), pp. 143-164.
44. Hemati, H. and Yosefirad, Z. (2011). The Relationship of Diversification Strategy and Value of Cash Holding with Abnormal Returns in Tehran Stock Exchange listed companies. Empirical Studies in Financial Accounting, 9(33), pp. 127-148.
45. Louis, H. (2004). Acquirers Abnormal Returns, Audit Firm Size and the Small Auditor

Clientele Effect. Available at SSRN 483662.
46. Hoitash, R., Markelevich, A.J. and Barragato, C.A. (2007). Auditor Fees and Audit Quality. Managerial Auditing Journal, 22(8), Available at SSRN: http://ssrn.com/abstract=1025904
47. Indarti, M.G.K. and Widiatmoko, J. (2021). The Effects of Earnings Management and Audit Quality on Cost of Equity Capital: Empirical Evidence from Indonesia. The Journal of Asian Finance, Economics and Business, 8(4), pp. 769–776. https://doi.org/10.13106/JAFEB.2021.VOL8.NO4.0769
48. Jabarzadeh Kangarluei, S., Namazi, M. and Bayazidi, A. (2011). Investigating the relationship between audit quality and earnings management of listed companies in the Tehran Stock Exchange. Accounting Research, 3(9), pp. 4-21.
49. Jadiyappa, N., Hickman, L.E., Kakani, R.K. and Abidi, Q. (2021). Auditor tenure and audit quality: an investigation of moderating factors prior to the commencement of mandatory rotations in India. Managerial Auditing Journal, 36(5), pp. 724-743. https://doi.org/10.1108/MAJ-12-2020-2957
50. Jaggi, B., Gul, F.A. and Chiu Lau, T.S. (2012). Auditor industry specialisation, political economy and earnings quality: Some cross-country evidence. Journal of International Financial Management and Accounting, 23(1), pp. 24-61.
51. Jensen, M. and Meckling, W. (1976). Theory of firm: Managerial behavior, agency costs and ownership structure. Journal of Finacial. Economics, 3(4), pp. 305-360.
52. Jiraporn, P., Miller, G.A., Yoon, S.S. and Kim, Y.S. (2008). Is earnings management opportunistic or beneficial? An agency theory perspective. International Review of Financial Analysis, 17(3), pp. 622-634.
53. Johnson, V.E., Khurana, I.K. and Reynolds, J.K. (2002). Audit-firm tenure and the quality of financial reports. Contemporary Accounting Research, 19(4), pp. 637-660.
54. Karami, G., Bazrafshan, A. and Mohammadi, A. (2011). Auditor Tenure and Earnings Management. Accounting Knowledge Journal, 2(4), pp. 65-82
55. Kashanipoor, M., Maranjory, M. and Moshashaee, S.M. (2012). The relationship between auditor tenure and discretionary accruals in listed Companies in Tehran Stock Exchange. Empirical Accounting Research, 2(1), pp. 113-126.
56. Krishnan, G.V. (2003). Audit Quality and the Pricing of Discretionary Accruals. A Journal of Practice &Theory, 22(1), pp. 109-126.
57. Kwon, S.Y. (1996). The impact of competition within the client's industry on the auditor selection decision, A Journal of Practice & Theory, 15(1) pp. 53-70.
58. Lai, S.M. and Liu, C.L. (2018). The Effect of Auditor Characteristics on the Value of Diversification. A Journal of Practice & Theory, 37(1), pp. 115-137.
59. Lam, S. and Chang, S. (1994). Auditor Service Quality and Auditor Size: Evidence from Initial Public Offerings in Singapore. Journal of International Accounting Auditing and Taxation. 3(1), pp. 103-114.
60. Libby, R., and Tan, H.T. (1995). The role of knowledge and memory in audit judgment. Judgment and decision-making research in accounting and auditing, 1, pp. 176-206.
61. Lopez, D.M. and Vega, J. (2019). Evaluating the effect of industry specialist duration on earnings management. Advances in Accounting, 45, 100412. doi: 10.101 6/j.adiac.2019.02.002.
62. Mansi, S.A., Maxwell, W.F. and Miller, D.P. (2004). Does auditor quality and tenure matter to investors? Evidence from the bond market. journal of accounting research, 42(4), pp. 755-

793. doi:10.1111/j.1475-679x.2004.00156.x
63. Martani, D., Rahmah, N.A., Fitriany, F. and Anggraita, V. (2021). Impact of audit tenure and audit rotation on the audit quality: Big 4 vs non big 4. Cogent Economics & Finance, 9(1), 1901395. doi:10.1080/23322039.2021.1901395
64. Masud, M., Anees, F. and Ahmed, H. (2017). Impact of corporate diversification on earnings management. Journal of Indian Business Research, 9(2), pp. 82-106.
65. Mnif, Y. and Ben Hamouda, A. (2021). Audit quality and the trade-off between real and accrual earnings management in the oil and gas industry: the GCC evidence. Journal of Applied Accounting Research, 22(2), pp. 223-251. https://doi.org/10.1108/JAAR-12-2019-0167
66. Myers, J., Myers, L. and Omer, T. (2003). Exploring the Term of the Auditor-Client Relationship and the Quality of Earnings: A Case for Mandatory Auditor Rotation?. The Accounting Review. 78. pp. 779-799. https://doi.org/10.2308/accr.2003.78.3.779.
67. Nam, J., Tang, C., Thornton, J.H. and Wynne, K. (2006). The effect of agency costs on the value of single-segment and multi-segment firms. Journal of Corporate Finance, 12(4), pp. 761–782.
68. Nonahal Nahr, A.A., Alinejad Sarookalaei, M. and Khezri, P. (2012). Assessing the impact of auditor quality on earnings management in newly Listed Companies in the Tehran Stock Exchange. Accounting Knowledge and Auditing Management, 2(7), pp. 103-114.
69. Palmrose, Z.V. (1986). Audit Fees And Auditor Size - Further Evidence. Journal of Accounting Research, Wiley Blackwell, 24(1), pp. 97-110.
70. Pezeshkian, S.A., Hosseini Azan Akhari, S.M. (2017). Investigating the relationship between auditor tenure and audit quality. Audit Knowledge Quarterly Journal, 17(29), pp. 235-264.
71. Piot, C. and Janin, R. (2007). External auditors, audit committees and earnings management in France. European Accounting Review, 16(2), pp. 429-454.
72. Primadita, I., Fitriany, F. and Kiantara, R.F. (2021). IOP Conf. Ser.: Earth Environ. Sci
73. Rajabi, R. (2006). The Challenges of Audit Replacement. Journal of Official Accountants, 8 and 9, 53-62
74. Rumelt, R.P. (1982). Diversification Strategy and Profitability. Strategic Management Journal, 3(4), pp. 359–369.
75. Schipper, K. (1989). Earnings management. Accounting Horizons, 3(4), pp. 91–102.
76. Schmid, M.M. and Walter, I. (2012). Geographic diversification and firm value in the financial services industry. Journal of Empirical Finance, 19(1), pp. 109-122.
77. Shi, G., Sun, J. and Luo, R. (2015). Geographic Dispersion and Earnings Management. Journal of Accounting and Public Policy, 34(5). 490-508. Available at SSRN: https://ssrn.com/abstract=2748592
78. Stanly, J. DeZoort, F.T. (2007). Audit firm tenure and financial restatements: An analysis of industry specialisation and fee effects. Journal of Accounting and Public Policy, 26(2), pp. 131-159.
79. Sun, J. and Liu, G. (2013). Auditor industry specialisation, board governance, and earnings management. Managerial Auditing Journal, 28(1), pp. 45-64.
80. Tate, S. and Feng, N. (2013). Perceived quality auditors in the non-profit sector: Evidence from request for proposal choices. Mustang Journal of Accounting and Finance, 4, pp. 65–96.
81. Thomas, S. (2002). Firm Diversification and Asymmetric Information: Evidence from Analysts' Forecasts and Earnings Announcements. Journal of Financial Economics, 64(3), pp. 373-396.

82. Trueman, B. and Titman, S. (1988). An Explanation for Accounting Income Smoothing. Journal of Accounting Research, 26, pp. 127-139.
83. Turner, J.L., Mock, T.J. and Srivastava, R.P. (2002). A Formal Framework of Auditor Independence Risk. Working Paper. The University of Memphis.
84. Vanstraelen, A. (2000). Impact of renewable long-term audit mandates on audit quality. The European Accounting Review, 9(3), pp. 419-443.
85. Lim, C.Y., Thong, T.Y. and Ding, D.K. (2008). Firm diversification and earnings management: Evidence from seasoned equity offerings. Review of Quantitative Finance and Accounting, 30(1), pp. 69-92. https://doi.org/10.1007/s11156-007-0043-x

How to cite this article:
Ghafourian Shagerdi, A., Saberi Postchi, S. (2021). Effect of Auditors' Characteristics on Relationship between Geographical Diversification and Real Earnings Management. Iranian Journal of Accounting, Auditing and Finance, 5(4), 55-75. doi: 10.22067/ijaaf.2021.41403
URL: https://ijaaf.um.ac.ir/article_41403.html

Ferdowsi University of Mashhad

Iranian Journal of
Accounting, Auditing & Finance

Received: 2021-09-20
Accepted after revision: 2021-11-29
Published online: 2021-12-24

RESEARCH ARTICLE DOI: 10.22067/ijaaf.2021.41404

Management Characteristics and Audit Opinion Shopping

Maryam Seifzadeh
Department of Economics and Administrative Sciences, Qeshm Branch, Islamic Azad University, Qeshm, Iran
Mahdi Salehi
Department of Economics and Administrative Sciences, Ferdowsi University of Mashhad, Mashhad, Iran
Bizhan Abedini
Department of Economics and Administrative Sciences, Hormozgan University, Hormozgan, Iran
Mohammad Hamed Khanmohammadi
Department: Economics and Administrative Sciences, Damavand Branch, Islamic Azad University, Damavand, Iran
Mohammad Hossein Ranjbar
Department: Economics and Administrative Sciences, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran

Abstract

The present study assesses the relationship between management characteristics (management entrenchment, narcissism, CEO overconfidence, board effort, real and accrual-based earnings management) and audit opinion shopping in the Tehran Stock Exchange-listed firms. In other words, this paper seeks to answer the question "whether management characteristics can exert a favourable effect on audit opinion shopping or not." For this study, the multivariate regression model is used for hypothesis testing. Research hypotheses are examined using a sample of 1309 observations on the Tehran Stock Exchange during 2012-2018 and by employing the panel data-based multivariate regression and fixed-effects model. The results show a negative and significant relationship between management entrenchment and managers' overconfidence and audit opinion shopping. A positive and meaningful relationship was observed between management narcissism, real and accrual-based earnings management, and board effort and audit opinion shopping.

Keywords: Management Entrenchment, CEO Overconfidence, Real and Accrual-based Earnings Management, Audit Opinion Shopping, Board Effort

Corresponding author: Mahdi Salehi
Email: mehdi.salehi@um.ac.ir

Number of Tables: 9
Number of References: 98
Pages: 23

https://ijaaf.um.ac.ir
E-Issn: 2717-4131

RESEARCH ARTICLE

1. Introduction

One of the essential information resources in the decision-making of managers, creditors, regulatory bodies, financial analysts, and the government is the annual financial statements. Due to a potential conflict of interests with other information users' groups, these suppliers may disclose information that misleads them. Thus, two information resources that attracted users' attention are audited financial statements and audit reports. It can be said that financial statements are an essential instrument for making a connection between auditors and financial statement users (Sardari et al., 2021). The audit report can increase trust in economic practitioners' and investors' financial statements and decision-making. Such a report is the only tool for transferring audit findings of the usefulness and reliability of financial reports, through which the auditor expresses his professional opinion about financial statements. Auditors play a significant role in exploring financial fraud, predicting the chance of bankruptcy, and the outbreak of unexpected crises. They should provide both the clients and the users of the financial statements with an independent professional opinion (Munoz-Izquierdo, 2018).

Auditors' opinion relies heavily on their behaviours during performing duties. There is no doubt that auditors' intrinsic and acquisitive characteristics and performances contribute to audit reports' quality. Some factors strengthen or weaken such features. Davidson and Neu (1993) define audit quality as the auditor's ability to explore and report significant distortions and discover manipulation. Controlling the contributing factors to performance and auditor's characteristics can affect the credit of audit reports and the quality of investment decisions and subsequently prevent investors' harm. Because according to the stewardship hypothesis, the aim of inviting independent auditors to a firm is to protect all firm beneficiaries' interests.

On the other hand, scholars believe that managers' experiences, personality characteristics, and moral values contribute significantly to the decisions and affect the financial reporting quality (Buchholz et al., 2019). Hence, it is believed that narcissistic managers are more likely to use the phenomenon of auditor opinion shopping to preserve the high performance (Patel and Cooper, 2014; Gerstner et al., 2013; Aktas et al., 2016; Engelen, Neumann and Schmidt., 2016; Petrenko et al., 2016; Zhu & Chen, 2015). The conducted studies show that managers often embark on earnings management to deliver their performance better. Narcissistic and overconfident managers also do more earnings management than others to improve their performance. Hence, they search for those auditors who help them conceal their illegal actions and present tailored financial statements (Buchholz et al., 2019).

Hiebl (2014); Morelli and Lecci (2014); Naranjo-Gil, Maas and Hartmann. (2009); Abernethy, Bouwens and van Lent (2010); Harlez and Malagueño (2016); Su, Baird and Schoch. (2015) indicate that managerial features, including narcissism, overconfidence, experiences, and expertise, are the leading factors that affect the controlling systems of accounting and the management of earnings. In other words, the CEO has the power to make increase/decrease the reported earnings (Davis, DeZoort and Kopp., 2006; Feng et al., 2011; Graham, Harvey and Puri., 2013). Since the managers' characteristics play a significant role in selecting auditors, the present study assessed whether the managers' factors, including real and accrual-based earnings management, managers' entrenchment, overconfidence, narcissism, and board effort, could contribute to auditor opinion shopping. The present study was carried out in developing countries, like Iran, with an extremely competitive audit market. It is expected to find a significant relationship between management characteristics and audit opinion shopping because of recent studies (e.g., Lennox, 2000; Chen, 2020). Audit opinion shopping show that firms participate in audit opinion shopping by changing auditors, and managers often are likely to vary the opinions of audit firms' partners due to the following reasons:

RESEARCH ARTICLE

The limited investors' support and the non-favourable performance of laws (Allen, Qian and Qian, 2005; Chen et al., 2013), so firms are not willing to hire high-quality auditors (DeFond Park, 2001; Wang, Wong and Xia., 2008).

The audit market's scatteredness causes the audit market competition to be high, so firms seek those auditors who are more motivated (Yang, 2013; Wang, Wong and Xia., 2008).

These factors give the clients bargaining power against auditors and make keeping the customers difficult for auditors. Therefore, it is probable that audit firms direct the discrepancies with the client toward the client's needs; hence, despite different costs, audit opinion shopping may occur because managers are willing to make their opinions in line with that of the auditors. Moreover, among other reasons that motive auditors to shop opinions, we can refer to auditors' low litigation risk. Although legal restrictions may lead to audit violations of the audit firms, in most cases, such bans are not severe (e.g., in most of the issues, auditors pay a sum equal to the audit fee). In other instances, the supervisors would revoke their audit license or halt. Still, in most cases, the audit firms' partners bypass such bans (Chen et al., 2015). In the upcoming sections, we will discuss the theoretical principles, hypothesis development, methodology, research variables definitions, and data analysis and discuss the discussion and conclusion in the last section.

2. Theoretical Foundations

An audit report is an essential tool to ensure companies' reliability and other information (Khani and Rajabdorri, 2019). Financial statements are likely biased, so auditors will be overseers to reduce such bias. Therefore, auditing financial statements are considered one of the crucial laws. However, managers significantly impact auditors' recruitment and change and can replace previous auditors with auditors who issue a favourable management comment to maximise their benefits (Lennox, 2000). Auditor change has grasped much attention in recent years. Treasury (2008) states that auditors' changes are rapidly increasing, and there is still no obligation to disclose the reason for the difference. Scholars such as Johnson and Lys (1995), Woo and Chye Koh (2001), and Hudaib and Cooke (2005) found that the likelihood of auditors changes increases following the issuance of a qualified report. It is assumed that companies change their auditors after receiving the qualified report, which is necessarily accompanied by a decrease in audit quality. This can overshadow the professionalism and independence of the audit and have unintended consequences. Audit opinion shopping means changing the auditor by the client to receive an improved audit comment from the new auditor. Chen, Francis and Hou (2019) define audit opinion shopping as an action the auditor's clients takes to replace the auditors willing to provide a more favourable audit report.

In the United States, the Securities and Exchange Commission has stated that audit opinion shopping is a practice that helps the auditor achieve his reporting objectives, even if it undermines the report's credibility (Archambeault and Dezoort, 2001). Audit opinion shopping is an issue that is inherently difficult to measure because there is so much incentive to hide it in a favourable audit report (Archambeault and Dezoort, 2001). Lennox (2000) showed that managers with high power would be successful in audit opinion shopping. For decades, lawmakers have been concerned for decades (US Senate, 1976; SEC, 1988; EC, 2010). Despite the importance of the issue, DeFond and Zhang (2014) state that audit opinion shopping is essential.

Therefore, the management will change the auditor if the current auditor does not want to provide the report favoured by the manager. The auditors may also accept a higher fee to mention the business unit manager to prevent their replacement. Zhang (2017) found an abnormal change in audit costs other than ignoring the positive or negative amount of audit costs indicates the audit opinion shopping

and other similar actions. Newton et al. (2016) found that competition in audit opinion shopping intensifies and facilitates the auditor's reports. Large audit firms are more likely than the smaller audit firms to expose the firm's problems, so audit opinion shopping will be less likely to occur in companies audited by the large audit firms. Because of their reputation in society, they will have more motivation to avoid being criticised by the community. The auditor's tenure is also one factor affecting audit opinion shopping. The auditor's long presence in a company due to his financial and economic dependence on the company increases the possibility of undermining the auditor's independence. The auditor cannot withstand management pressures, and the audit opinion shopping will be more likely. Chen et al. (2015), using the model Pulic (2000), examined the audit opinion shopping at the partner level. The results showed that companies would be successful in audit opinion shopping at the partner level. Audit opinion shopping at the partner level will be more likely when the company has an economically particular position economically. Therefore, managers commit to audit opinion shopping to improve their performance and function.

2.1. Hypothesis Development

In recent decades, the phenomenon of opinion shopping has been a significant concern for regulators, so it has been considered in previous research (e.g., Chow and Rice, 1982) importance. Audit opinion shopping is when the clients look for auditors who provide a mutual and favourable comment with a high-quality audit report and present their favourable or unfavourable audit report. Companies that commit audit opinion shopping can eliminate the audit comment and even adjust it as they wish, preventing a report's issuance with an unfavourable comment (Ghaznavi Doozandeh et al., 2021). On the other hand, according to the theory, the audit profession was created to protect shareholders' interests against managers. Generally, the financial statement users also make the most critical economic, investment, and credit decisions based on the professional auditor's comment about management's financial information. Therefore, the accuracy of this report is of great importance. The phenomenon of opinion shopping, which has attracted particular attention in recent years, leads to the fact that the independent audit reports accuracy becomes a severe business. Because of this phenomenon, managers look for auditors who can change their professional comments according to their wishes and receive a customised audit report that shows the business's favorability. He, Pittman and Rui. (2016) states that audit market competition and low litigation risk have led auditors to cooperate and sell votes to clients. Today, auditors do not have much legal responsibility for their audit process, and sometimes, although they may face legal prohibitions, in most cases, these prohibitions are not severe. In this regard, Gul, Wu and Yang. (2013) argue that audit firms' partners are different in terms of expertise, ability, risk assessment, knowledge of the client's activity, and ethical standards, leading to different audit quality. In other words, these audit partners are more inclined to provide favourable comments about earnings management. Earnings management refers to its ability to manipulate its profits to improve its financial performance.

Management can use the information and privileges at its disposal to inform and encourage stakeholders about the business unit (Healy and Wahlen 1999). They generally improve earnings quality and financial reporting (Gaio and Raposo, 2011). It would be unethical for management to exercise its authority to obtain personal benefits, such as raising its position and increasing its rights and interests (McManus, 2018; Harris and Bromiley, 2007). Such earnings management practices can be detrimental to businesses (Kaplan, 2001).

The National Commission on Fraudulent Financial Reporting (1987, pp. 5, 6) states that earnings management practices can mislead financial statement users and sometimes lead to risky activities such as fraudulent financial reporting (Merchant and Rockness 1994). Accordingly, earnings

RESEARCH ARTICLE

management practices are probably the most ethical issue facing the auditing profession (van Scotter and Roglio, 2020). Besides, recent studies indicate a significant relationship between managers' personality traits and managers' moral misconduct (Buchholz et al., 2019), leading to a decline in financial auditing and reporting quality. Especially after the recent financial scandals of large auditing firms, this is one of the most important reasons for distrust in the auditing profession.

Organisational results, such as earnings quality, reflect CEOs' business units' decisions and result from CEOs' characteristics (Hambrick and Mason 1984). Managers' features, such as tenure, management team stability, gender, ability, and inherent characteristics, are the most critical factors influencing their decisions (Bromiley and Rau 2016; Carpenter, Geletkanycz and Sanders, 2004). Amernic and Craig (2010) state that CEO narcissism and overconfidence are among the most critical personality traits that affect the quality of business profits. Therefore, narcissistic CEOs make vague choices to make the company's financial situation seem in the best possible way. By improving and weakening the company's performance, they try to gain a strong position in the company and others' approval and admiration (Campbell et al., 2000; Horvath and Morf, 2010). Concerning the narcissism and other characteristics of managers, including earnings management, overconfidence, and entrenchment, it is argued that trying to make the CEO look good can cause severe damage to business units (Lubit, 2002) because the strength of management, like other management features, can have positive and negative consequences to companies. According to Salehi and Moghadam. (2019), Seifzadeh et al. (2020), and Salehi, Mahmoudabadi and Adibian, (2018), entrenchment management refers to situations when the CEO is simultaneously the chairman or vice-chairman of the board and can make and implement decisions. Therefore, when making a wrong decision and following its shareholders' wishes, he takes refuge in the positions he holds in the company (Salehi and Moghadam., 2019). These management decisions can sometimes benefit shareholders and businesses in the long run, but in the short run, discourage short-term investors (Seifzadeh et al., 2020).

Related studies (e.g., Olsen, Dworkis and Young. 2014; Capalbo et al., 2018) showed a positive and significant relationship between managers' narcissism and fraudulent financial statements such as earnings management; narcissistic overconfident managers tend to show their performance in a good way. They, therefore, offer financial reports financially embellished (Buchholz et al., 2019).

Experimental studies about audit opinion shopping indicate that audit opinion shopping occurs in each period (before and after the auditor). Smith (1986) believes that one of the concerns about audit opinion shopping is that the substitute auditor's comment differs from that of the previous auditor. Chow and Rich (1982) argue a significant relationship between auditors switching and audit opinion shopping. Change in the auditor's reports may result from a change in the client's financial position or a change in the auditor's judgment, mainly when an auditor switching occurs. Osma et al. (2019) found that audit opinion shopping through a change of audit firm is successful but shopping a comment at the partner level is unsuccessful. Capalbo et al. (2018), Nasir et al. (2018), and Hsieh Bedard and Johnstone. (2014) showed a significant relationship between managers' narcissism and their overconfidence with earnings management and fraudulent financial reporting.

Moreover, Kontesa, Brahmana and Tong. (2020), following Capalbo et al. (2018); Nasir et al. (2018); Hsieh, Bedard and Johnstone. (2014) showed a positive and significant relationship between managers' narcissism and earnings management. Therefore, considering narcissistic and overconfident managers' efforts to achieve more reputation. We expect a significant relationship between managers' narcissism and overconfidence by opinion shopping compared to non-narcissistic counterparts. Similarly, narcissistic managers assert their power to undermine corporate governance (Grant and McGhee, 2013). Also, narcissistic managers seek more compensation to ensure that they

appear important (Buchholz et al., 2019). Therefore, such managers also tend to use narcissistic managers to choose the management of other departments (Hayward and Hambrick 1997). They seek to reduce the board of directors' performance and control in companies (Zhu and Chen, 2015). Therefore, such managers try to put themselves in the chairman or vice-chairman position of the board of directors to control the company's situation by fortifying the management.

Marquez-Illescas, Zebedee and Zhou. (2018) showed that disclosing information in companies with narcissistic CEOs is much more limited and biased than other companies.

Therefore, according to what has been said, the hypothesis is as follows:

Research Hypothesis: There is a significant relationship between management characteristics and audit opinion shopping.

3. Research Methodology

The statistical population of this paper includes all listed firms on the Tehran Stock Exchange during 2012-2018. The systematic elimination method is used for sampling, and the statistical sample is selected after applying the following conditions:

The firm should be enlisted entire date of the study and should not be in service industries.
The final sample is obtained and depicted in Table 1.

Table 1. The number of firms in the statistical population

Description	Eliminated firms in total periods	Total No. of firms
Total listed firms on the Tehran Stock Exchange		445
Eliminating financial intermediaries, financial supply, insurance, and investment firms	88	
Firms with more than six months of transaction halt	111	
Eliminating firms entered the Stock Exchange during the study period	57	
Eliminating due to lack of access to information	113	
Statistical population		187

3.1. Data Collection and Method

The primary data for hypothesis testing were collected using the information bank of Tehran Stock Exchange, including Tadbir Pardaz and Rah Avard-e Novin, and the published reports of Tehran Stock Exchange via direct access.

3.2. Data Analysis Method

A multivariate linear regression model is used for hypothesis testing. The frequency distribution table is used for describing data. At the inferential level, the F-Limer, Hausman test, normality test, and multivariate linear regression model are used for hypothesis testing.

3.3. Research Model

Model (1) is used to test the hypothesis as follows:

$$\text{shop}_{it} = a_0 + a_1 ME_{it} + a_2 OVERCON_{it} + a_3 CEONAR_{it} + a_4 REM_{it} + a_5 AEM_{it} + a_6 BEFD1_{it} + a_7 RET_{it} + a_8 age_{it} + a_9 GRW_{it} + a_{10} ROA_{it} + a_{11} LEV_{it} + a_{12} size_{it} + a_{13} MTB_{it} + a_{14} HHI_{it} + a_{15} AIS_{it} + a_{16} BUSY_{it} + a_{17} Year_{it} + a_{18} Industry_{it} + \varepsilon_{it}$$

Where

Dependent Variables

Shop: opinion shopping is measured as follows:

RESEARCH ARTICLE

Opinion shopping is a dummy variable. If the client has changed his auditor and received an unqualified report 1, otherwise, 0, and if the employer has replaced his auditor with a low-quality one. The firm has replaced its auditor with a lower disclosure quality rank by quality here.

Independent Variables

ME: Based on Salehi, Mahmoudabadi and Adibian (2018):

1. Managerial ownership: the number of shares available to the CEO divided by total published shares;
2. CEO tenure: the number of years the CEO has been consistently at the CEO position of the firm under study;
3. CEO duality: if the CEO is the director or vice-chair 1, otherwise, 0
4. Board compensation: the amount of compensation assigned to the Board of Directors approved by the Annual General Meeting;
5. CEO change: if the auditor has changed during year 1, otherwise, 0; and,
6. Board independence: the number of unbound board members divided by total board members.

This paper uses the exploratory factor analysis (using the principal component analysis) to calculate the audit quality variable. Factor analysis is a multivariate statistical method for classifying and recognising the present structures among research data. Such a statistical approach is used for two reasons.

The information related to the 6 factors of corporate governance with an influence on motivation and capability of a firm is collected for each year-company. The linear correlation coefficient matrix of the above six variables is extracted for each year, and finally, the exploratory factor analysis is carried out. The variable of management entrenchment is achieved from the total weight multiplication of the factor's numerical value of the related element.

Over.Con: In this paper, the index of surplus investments in assets is used to measure managers' overconfidence as follows:

According to Schrand and Zechman (2012), this index shows surplus investments in assets. It is achieved from the residuals of total assets growth regression to sales growth computed separately per industry year. Should the regression residual be larger than 0, this index equals 1; otherwise, it would be 0. This index is used because managers invest more in their peers in firms where assets grow higher than sales growth.

$$Assets.Gr_{it} = a_0 + a_1 sales.Gr_{it} + \varepsilon_{it}$$

CEO-NAR:

There are two criteria for measuring managerial narcissism:

Cash compensation index: narcissistic managers in organisations usually ask for higher cash compensations and stabilise their positions in organisations in this way (O'Reilly et al., 2014). The cash compensation of managers is calculated by dividing the approved cash compensation in general assembly meetings into the fiscal year's total payments.

CEO signature: recent studies show that signature size is a measurement method for narcissism (Ham et al., 2017; 2018). The previous studies on psychology have proved that signature is a method for showing power in individuals (e.g., Kettle and Haubl, 2011; Bryan, Adams, and Monin, 2013; Chou, 2015). In this regard, psychology also shows a significant relationship between narcissism and the signature. Zweigenhaft and Marlowe (1973) indicate that people with high confidence have larger signatures than others. Other studies show that signature size can significantly demonstrate

individuals' confidence and dominance (Jorgenson, 1977; Koole and Pelham, 2003). Self-efficacy, dominance, and high overconfidence are among the salient features of narcissistic people measured with the signature indicator. Since people are not publicly aware that their signatures show their narcissism, the use of signature, compared to other tools like questionnaires through which an individual can evade answering questions correctly, is a more suitable tool (Rudman, Dohn, and Fairchild, 2007). To ensure this method, it is shown that a sample of graduated students and offer a significant relationship between signature and existing criteria in the provided questionnaire by Ames, Rose, and Anderson (2006). Moreover, Ham et al. (2017) posit that signature size is suitable for narcissism because they find a positive and significant relationship between signature size and narcissism score. Hence, following the previous studies, in the present study, the signature variable is used as an index for CEO narcissism (e.g., Davidson and Smith., 2015; Ham et al., 2017, 2018; Zhou, 2017; Bushman et al., 2018).

REM: Abnormal cash flow (EM_CFO), abnormal cost (EM_PROD), and abnormal discretionary costs (EM_DISX) are used for measuring sales firm control, production control, and discretionary cost control. Equation (2) is used for estimating abnormal cash flow of the firm (EM_CFO), equation (3) for estimating abnormal production cost of the firm (EM_PROD), and formula (4) is used for estimating the abnormal discretionary cost of the firm (EM_DISX) (Cohen, 2010; Zeng, 2010; Lin, 2013). In this paper, eq. (4) is used for estimating real earnings management.

$$\frac{CFO_{i,t}}{A_{i,t-1}} = \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{s_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta s_{i,t}}{A_{i,t-1}} + \delta_{i,t} \quad (2)$$

$$\frac{PROD_{i,t}}{A_{i,t-1}} = \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{s_{i,t}}{A_{i,t-1}} + \beta_3 \frac{\Delta s_{i,t}}{A_{i,t-1}} + \beta_4 \frac{\Delta s_{i,t-1}}{A_{i,t-1}} + \delta_{i,t} \quad (3)$$

$$\frac{DISX_{i,t}}{A_{i,t-1}} = \beta_1 \frac{1}{A_{i,t-1}} + \beta_2 \frac{s_{i,t-1}}{A_{i,t-1}} + \delta_{i,t} \quad (4)$$

Si,t: Eq. (2) is the sales income of the firm i in the year t. PRODit in eq. (3) is the firm's total costs i from the product of year t equal to the total costs of products and changes in the inventory.

DISXit: Eq. (4) is total office costs and sales costs of the firm i in the year t. For a similar industry and year, given the equations (2), (3), and (4) to regression residuals (EM_CFO), abnormal cash flow of the firm (EM_PROD), abnormal production cost, and (EM_DISX) abnormal discretionary costs. Since the firms are likely to select a combination of these three ways, we employ Cohen (2010) and Zeng (2012) for making a general real earnings management index:

EM PROXY = EM PROD−EM CFO −EM DISX

AEM: The adjusted model of Jones (1995) is used to calculate discretionary accruals. First, the coefficients are estimated using the Eq. (2):

$$\frac{TA_{i,t}}{Assets_{i,t-1}} = \alpha_1 \left(\frac{1}{Assets_{i,t-1}}\right) + \alpha_2 \left(\frac{\Delta Sales_{i,t}}{Assets_{i,t-1}}\right) + \alpha_3 \left(\frac{PPE_{i,t}}{Assets_{i,t-1}}\right) + \varepsilon_{i,t} \quad (1)$$

After coefficient estimation, non-discretionary accruals are computed using Eq. (3)

$$\frac{NDA_{i,t}}{Assets_{i,t-1}} = \alpha_1 \left(\frac{1}{Assets_{i,t-1}}\right) + \alpha_2 \left(\frac{\Delta Sales_{i,t} - \Delta AR_{i,t}}{Assets_{i,t-1}}\right) + \alpha_3 \left(\frac{PPE_{i,t}}{Assets_{i,t-1}}\right) \quad (2)$$

And finally, for the calculation of discretionary accruals, we have:

$$\frac{DA_{i,t}}{Assets_{i,t-1}} = \frac{TA_{i,t}}{Assets_{i,t-1}} - \frac{NDA_{i,t}}{Assets_{i,t-1}} \quad (3)$$

In the above equations, TA is accruals, Assets is total assets, Sales is income, AR is accounts receivable, and PPE is gross properties, machinery, and instrument. NDA is non-discretionary, and DA is discretionary accruals. In this paper, the following formula is used for computing accruals, which is referred to as profit and loss:

Accruals = profit before unpredicted items – operational cash flow

Most previous studies utilised DA to measure earnings and audit quality (Shiue, 2012). This paper uses a proxy for audit quality using the DA because it presents a degree of negotiations related to audit setting decisions. Abnormal accruals of performance setting estimate the size of DA.

BEF: board effort equal to the number of sessions the board held during a year.

Control Variables

LEV: total liabilities to total firm assets;

Age: firm age that is equal to the time interval between data of establishment;

Size: equals to the natural logarithm of total firm assets;

AIS: auditor specialisation in the industry i in the year t that the market share is used as an index for auditor industry specialisation in this paper. The more the auditor's market share, the more industry specialisation and auditor experience than other competitors. Auditor market share is computed as follows:

Eq. (1)

$$\frac{\textit{total assets of all employers of each special audit firm in special industry}}{\textit{total assets of all employers in special industry}}$$

In this paper, those firms are considered industry specialised that their market share, namely the so-called ratio, is more than [(total existing firms/1)*1.2]. After calculating an audit firm's market share, should the obtained values be more than the above equation's value, the audit firm is specialised in the mentioned industry. Hence, an audit firm is industry specialised 1; otherwise, 0 will be assigned (Habib and Bhuiyan, 2011).

ROA: equals to net profit ratio divided by the book value of equity;

Ret: equals the market value of the current year minus that of the previous year divided by the market value of the last year

GRW: sales growth, is equal to total sales of the current year minus sales of the previous year divided by sales of the last year;

Busy: if the end of the fiscal year is January 20, equals 1; otherwise, 0;

Mtb: market value to book value of equity

Hhi: auditor's concentration: Similar to the previous studies (Eshleman and Lawson, 2017; Huang Chang and Chiou, 2015; Newton, Wang and Wilkins, 2013; Kallapu, Sankaraguruswamy and Zang, 2010), this paper has used the index of auditor concentration. The lower the value of this index, the higher the concentration and competition in the market. Boone, Khurana and Raman (2012) and Kallapur, Sankaraguruswamy and Zang (2010) state that this index's results can be considered inversely for audit market competition. Choi and Zéghal (1999) conclude a negative and significant relationship between concentration and competition in the audit market. In this paper, similar to the study of (Marquez & Steven, 1997), this index is used in the industry section. Moreover, similar to the study of Kallapur, Sankaraguruswamy and Zang (2010), this index is multiplied by (-1) to be used as an index for audit market competition, not concentration. This index is computed as follows:

$$HHI = \left(\sum_{i=1}^{k} \left(\frac{S_{it}}{S_{jt}}\right)^2 * (-1)\right)$$

K: the number of auditors in the related industry
s: total audit fee received by the auditor in the related industry
S: total audit fee received by auditors in related industry
Year: dummy variable of the year; and,
Industry: dummy variable of industry

3.4. Data Analysis

In this paper, model 1 is used to assess the relationship between management characteristics and audit opinion shopping. Further, the present study has inserted the panel data method.

Table 2. Descriptive statistics of the variables

Variable	Mean	Std.dev	Min	Max
Shop	0.54	0.478	0.000	1.000
Me	0.467	0.526	0.007	4.561
Overcon	0.468	0.499	0.000	1.000
Ceonar	0.086	0.063	0.000	0.186
Rem	0.022	0.033	0.000	0.359
Aem	0.105	0.119	0.000	1.116
Bef	14.730	5.424	1.000	60.000
Rest	0.747	0.435	0.000	1.000
Grw	0.287	0.794	-1.000	7.939
Age	39.302	13.186	8.000	67.000
Size	14.302	1.542	10.533	19.774
Lev	0.612	0.259	0.061	2.627
Mtb	4.344	7.510	-59.594	53.464
Hhi	0.205	0.219	0.000	1.000
Roa	0.104	0.163	-1.063	1.242
Ais	0.434	0.495	0.000	1.000
busy	0.684	0.465	0.000	1.000

Unit Root

By assessing all variables' unit roots, all are at the stationary level. The obtained LM statistic for each variable is reported in Table 3.

Collinearity Test

According to Table (4), there is no collinearity among variables by assessing collinearity among variables, and they are independent.

Table 3. The results of the Hadri test

Variable	Sig.		Variable	Sig.
Shop	0.541		ME	0.840
Overcon	0.231		Ceonar	0.298
REM	0.225		AEM	0.350
BEF	0.002	0.998	Rest	1.000
GRW	0.215		Age	0.215
Size	0.254		LEV	0.187
MTB	0.548		HHI	1.000
Roa	0.875		AIS	0.665
Busy	0.215			

RESEARCH ARTICLE

Table 4. The results of the Collinearity

Model (1)		
variable	**VIF**	**1/VIF**
Roa	1.73	0.576
Lev	1.70	0.587
Size	1.60	0.624
Me	1.39	0.719
Ais	1.38	0.725
Rem	1.10	0.906
Aem	1.09	0.919
Grw	1.08	0.929
mtb	ret1.06	0.941
Ret	1.06	0.944
Ceonar	1.04	0.957
Age	1.04	0.961
Hhi	1.04	0.962
Busy	1.04	0.962
Overcon	1.03	0.969
Befd1	1.01	0.989
Mean VIF	1.21	

As presented in the table, given the obtained VIF statistic is less than 10 for all variables, there is no collinearity among model variables, so there is no collinearity problem in regression.

Sensitivity Analysis Test

The correlation interval is between -1 and +1, where negative figures show inverse correlation, and positive figures indicate a direct correlation.

3.5. Research Model Estimation

We should first determine whether the F test is pooled or panelled to estimate the model. In case H0 is rejected after performing the F test, the question here is that based on which models of fixed effects or random effects the model is analysable, determined by the Hausman test. Regarding the pooled test results reported in Table 6, the null hypothesis concerning the pooled data is not ejected for the first model at 99%. Hence, the model with panel data should be used to estimate the models' coefficients. According to Table 6, the Hausman test statistic, based on estimation for the models, is equal to 32.91. A probability level of 0.0076 is smaller than χ^2 the table's value, so the null hypothesis is rejected. Hence, the model with random effects is more appropriate for the research model. Regarding Table (6), there is a negative and significant relationship between management entrenchment and managers' overconfidence and audit opinion shopping because the p-values of them are 0.001, 0.041, respectively, lower than the 5% significance level with negative coefficients of 0.034 and 0.005 showing that such a negative relationship exists between these two variables.

RESEARCH ARTICLE

Table 5. The results of the sensitivity analysis

	shop	ME	Overcon	Ceonar	Rem	Aem	BEFD1	REST	GRW	AGE	SIZE	LEV	MTB	Hhi	Roa	Ais	busy
shop	1.000																
Me	-0.093	1.000															
Overcon	-0.042	0.063	1.000														
Ceonar	0.014	-0.069	-0.057	1.000													
Rem	0.077	-0.022	-0.042	-0.026	1.000												
Aem	0.068	0.007	0.081	0.010	0.210	1.000											
BefD1	0.015	-0.043	-0.044	-0.016	-0.018	-0.014	1.000										
Rest	0.436	-0.172	0.015	0.042	-0.003	0.027	0.005	1.000									
Grw	-0.053	0.023	0.075	0.002	0.169	0.144	0.002	-0.026	1.000								
Age	-0.011	-0.019	0.004	-0.041	0.072	0.124	0.023	0.005	0.039	1.000							
Size	0.025	0.379	0.037	-0.034	0.025	-0.051	-0.011	-0007	-0.012	-0.038	1.000						
Lev	0.077	-0.242	0.002	-0.016	0.068	0.014	-0.012	0.076	-0.053	0.058	0.078	1.000					
Mtb	-0.036	0.094	-0.035	0.033	0.091	0.010	0.034	-0.102	0.054	0.036	-0.089	-0.074	1.000				
Hhi	-0.039	-0.043	-0.021	0.013	0.053	0.036	-0.040	-0.049	0.005	0.055	-0.031	-0.018	0.098	1.000			
Roa	-0.133	0.258	0.051	0.111	-0.035	-0.002	0.020	-0.107	0.137	-0.101	0.066	-0.607	0.063	0.029	1.000		
Ais	0.049	0.173	0.009	0.027	-0.007	-0.036	-0.001	-0.071	-0.036	0.009	0.493	0.067	-0.012	0.098	0.069	1.000	
busy	0.149	0.122	0.018	0.067	0.063	0.008	-0.038	0.007	0.008	-0.052	0.013	-0.041	0.031	0.008	0.027	0.065	1.000

RESEARCH ARTICLE

Table 6. The results of the model

shop	Coefficient	Std/ Error	t-Statistic	Prob.
Me	-0.034	0.010	-3.32	0.001
Overcon	-0.005	0.002	-2.05	0.041
Ceonar	0.283	0.120	2.36	0.019
Rem	0.179	0.071	2.53	0.012
Aem	0.007	0.003	2.27	0.023
Bef	0.004	0.002	1.71	0.087
Rest	0.371	0.030	12.34	0.000
Grw	-0.019	0.015	-1.27	0.204
Age	0.007	0.003	2.48	0.013
Size	-0.052	0.029	-1.77	0.083
Lev	0.155	0.097	1.59	0.111
Mtb	0.005	0.002	2.56	0.010
Hhi	-0.166	0.099	-1.68	0.093
Roa	-0.031	0.017	-1.75	0.081
Ais	0.004	0.001	4.49	0.000
busy	-0.028	0.006	-4.90	0.000
_con	0.645	0.637	1.01	0.311
Weighted Statistics				
Number of obs	1058			
R-SQ	0.1951			
R-SQ2	0.0973			
P-value model	F (16, 855)=12.65 Prob>F=0.000			
F-Limer	F (186, 855)=5.25 Prob>F=0.000			
Hausman test	Wald chi2(16)=32.91 Prob>chi2=0.0076			

Moreover, there is a positive and significant relationship between managers' narcissism, real and accrual-based earnings management, and audit opinion shopping. Because the p-values are 0.019, 0.012, and 0.023, respectively, less than the significance level of 0.05 with positive coefficients of 0.0283, 0.179, and 0.007, which shows the positive and significant association of these variables and audit opinion shopping. The results show no association between board effort and audit opinion shopping at a 95% level. The p-value of this variable is 0.087, higher than the 5% significance level and lower than the 10% significance level. So a significant relationship between board effort and audit opinion shopping is rejected at 95% level. However, at the 90% level, a positive and meaningful relationship is evident because the coefficient is a positive figure of 0.004. Since the p-value of the model is 0.000, the model benefits from sufficient significance.

Robustness Testing

In this paper, to yield better results and confirm the results of the study, research hypotheses were examined using generalisable least squares, random-effects model, and t+1, the results of which are as follows:

To confirm model 1, the relationship between management characteristics and audit opinion shopping is assessed using the generalisable least squares method. According to the above table results, there is a negative and significant relationship between management entrenchment, managers' overconfidence, and audit opinion shopping based on the generalisable least squares method. That is in line with the results of the primary method because the p-value of them in both approaches is 0.005

and 0.000 less than 5% significance level with negative coefficients of 0.014 and 0.099 that is indicative of a negative relationship between them. Moreover, there is a positive and significant relationship between managers' narcissism, real and accrual-based earnings management, and audit opinion shopping based on the generalisable least-squares method because the p-values of these variables are 0.036, 0.025, 0.032, and 0.025, showing that a positive and significant exists between these variables and audit opinion shopping. Since the generalisable least squares method is in line with the study's primary method, we can confidently express a significant relationship between management characteristics and audit opinion shopping.

Table 7. The results of the FGLS testing result model

shop	Coefficient	Std/ Error	t-Statistic	Prob.
Me	-0.014	0.005	-2.80	0.005
Overcon	-0.099	0.011	-9.04	0.000
Ceonar	0.159	0.076	2.10	0.036
Rem	0.947	0.422	2.24	0.025
Aem	0.541	0.113	2.14	0.032
Bef	0.001	0.001	2.24	0.025
Rest	0.463	0.030	15.42	0.000
Grw	-0.026	0.017	-1.53	0.126
Age	-0.001	0.001	-0.89	0.375
Size	-0.007	0.003	-2.93	0.004
Lev	-0.055	0.065	-0.83	0.404
Mtb	0.009	0.003	2.86	0.004
Hhi	-0.071	0.059	-1.20	0.231
Roa	-0.285	0.103	-2.76	0.006
Ais	0.084	0.030	2.78	0.005
busy	0.145	0.028	5.22	0.000
-con	-0.040	0.156	-0.26	0.794
Weighted Statistics				
Number of obs	1058			
R-SQ	-			
R-SQ2	-			
P-value	Wald chi2(16)=333.59 Prob>chi2=0.0000			

Furthermore, to confirm model (1), the relationship between management characteristics and audit opinion shopping is assessed using the random-effects method. As shown in Table 8, there is a negative and significant relationship between managers' overconfidence and audit opinion shopping based on the random-effects method. This follows the results of the primary method of the study and confirms that because the p-value of that is 0.041 lower than the 5% significance level and their coefficients are also negative figures of 0.005 showing a negative relationship between them. Furthermore, according to the random-effects method, there is a positive and significant relationship between managers' narcissism, real and accrual-based earnings management, and board effort and audit opinion shopping because the p-value of them is 0.025, 0.008, and 0.000, respectively, lower than 5% significance level with positive coefficients of 0.157, 0.214, and 0.078 showing a positive and significant relationship between these variables and audit opinion shopping. According to the results of the random-effects method, the relationship between management entrenchment and board effort and audit opinion shopping is not confirmed at the 95% level. However, at the 90% confidence level, a negative and significant relationship exists between entrenchment and audit opinion shopping. A positive and significant difference between board effort and audit opinion shopping is evident.

RESEARCH ARTICLE

Table 8. The results of the RE testing result model

shop	Coefficient	Std/ Error	t-Statistic	Prob.
Me	-0.044	0.026	-1.69	0.091
Overcon	-0.005	0.002	-2.05	0.041
Ceonar	0.158	0.070	2.24	0.025
Rem	0.214	0.078	2.72	0.008
Aem	0.078	0.019	4.09	0.000
Bef	0.002	0.001	1.90	0.057
Rest	0.400	0.035	11.49	0.000
Grw	-0.021	0.015	-1.42	0.156
Age	0.008	0.004	1.94	0.055
Size	-0.082	0.046	-1.80	0.072
Lev	0.045	0.021	2.14	0.034
Mtb	0.002	0.001	2.91	0.004
Hhi	-0.112	0.069	-1.61	0.108
Roa	-0.107	0.021	-5.10	0.000
Ais	0.095	0.038	2.49	0.013
busy	0.148	0.047	3.11	0.002
-con	-0.056	0.253	-0.22	0.826
Weighted Statistics				
Number of obs	1058			
R-SQ	0.2787			
R-SQ2	0.1860			
P-value	Wald chi2(16)=207.41 Prob>chi2=0.000			

Since the random-effects method results conform with the study's primary method, we can confidently express a significant relationship between management characteristics and audit opinion shopping.

Table 9. T+1 testing result model

shop	Coefficient	Std/ Error	t-Statistic	Prob.
Me	-0.014	0.005	-2.78	0.005
Overcon	-0.014	0.005	-2.72	0.007
Ceonar	0.156	0.055	2.86	0.009
Rem	0.463	0.241	1.92	0.056
Aem	0.057	0.026	2.20	0.028
Bef	0.005	0.003	1.46	0.145
Rest	0.238	0.031	7.55	0.000
Grw	-0.022	0.018	-1.23	0.219
Age	0.007	0.004	1.79	0.074
Size	-0.026	0.011	-2.36	0.018
Lev	0.024	0.013	1.86	0.062
Mtb	0.002	0.003	1.99	0.047
Hhi	-0.005	0.002	-2.05	0.041
Roa	-0.014	0.005	-2.72	0.007
Ais	0.036	0.018	1.99	0.047
busy	-0.014	0.005	-2.81	0.005
-con	0.146	0.163	0.90	0.371
Weighted Statistics				
Number of obs	1058			
R-SQ	-			
R-SQ2	-			
P-value	Wald chi2(16)=72.93 Prob>chi2=0.000			

To confirm model 1, the relationship between management characteristics and audit opinion shopping is assessed using the t+1 method. As shown in Table 9, there is a negative and significant relationship between management entrenchment, managers' overconfidence, and audit opinion shopping the t+1 method. This follows the results of the primary method of the study and confirms that because the p-value of that is 0.005 and 0.007 lower than the 5% significance level. The coefficients are also negative figures of 0.014 and 0.014, showing a negative relationship. According to the t+1 method, there is a positive and significant relationship between managers' narcissism, real and accrual-based earnings management, and audit opinion shopping because the p-value of them is 0.009, 0.028, lower than the 5% significance level with positive coefficients of 0.156 and 0.057 showing a positive and significant relationship between these variables and audit opinion shopping. According to the t+1 method results, the relationship between accrual-based earnings management and board effort and audit opinion shopping is not confirmed at the 95% level. However, at the 90% confidence level, a negative and significant relationship exists between these variables. Since the t+1 method results conform to the study's primary method, except for board effort and accrual-based earnings management, we can express more confidently that there is a significant relationship between management characteristics and audit opinion shopping.

4. Results and Discussion

The hypothesis testing results show a negative relationship between management entrenchment, overconfidence, and opinion shopping. There is a positive and significant association between real and accrual-based earnings management, management narcissism, board effort, and audit opinion shopping. Since narcissistic and overconfident managers pass over their peers in selecting more biased accounting methods to keep the firm value and not lower the firm credit. Campbell, Goodie and Foster. (2004) believe that narcissistic managers are more motivated to obtain favourable results because they strive for more reputation. In general, the present study results in complete Olsen, Dworkis and Young. (2014) and Capalbo et al. (2018) declare that narcissistic managers are more likely to show their performance better using earnings management and illegal actions. Hence, by their short-sighted behaviours, narcissistic and overconfident managers create some negative consequences in the long run (Lakey et al., 2008; Campbell and Miller, 2011). Moreover, the present study results contrast with Rauthmann (2012), who declares that narcissistic and overconfident managers prevent illegal actions to keep their reputation and credit in society. So, they seek those high-quality auditors to report opportunistic management actions in the business firms to show themselves innocent and blame others. According to the studies of Buchholz et al. (2019), Capalbo et al. (2018), and Olsen, Dworkis and Young. (2014), narcissistic and overconfident managers are more willing for moral misuse since they attempt to improve their performance.

References

1. Abernethy, M.A., Bouwens, J. and van Lent, L. (2010). Leadership and control system design. *Management Accounting Research,* 21(1), pp. 2–16. https://doi.org/10.1016/j.mar.2009.10.002
2. Ames, D. R., Rose, P. and Anderson, C. P. (2006). The NPI-16 as a short measure of narcissism. *Journal of research in personality*, *40*(4), pp.440-450. https://doi.org/10.1016/j.jrp.2005.03.002
3. Aktas, N. De Bodt, E. Bollaert, H. and Roll, R. (2016). CEO narcissism and the takeover process: From private initiation to deal completion. *Journal of Financial and Quantitative Analysis,* 51(1), pp. 113–137. https://doi.org/10.1017/S0022109016000065.

4. Allen, F. Qian, J. and Qian, M. (2005). Law, finance, and economic growth in China. *Journal of Financial Economics*, 7(1), pp. 57-116. https://doi.org/10.1016/j.jfineco.2004.06.010
5. Amernic, J.H. and Craig, R.J. (2010). Accounting as a facilitator of extreme narcissism. *Journal of Business Ethics*, 96(1), pp. 79–93. https://doi.org/10.1007/s10551-010-0450-0.
6. Archambeault, D. and Dezoort, F.T. (2001). Auditor opinion shopping and the audit committee: An analysis of suspicious auditor switches. *International Journal of Auditing*, 5(1), pp. 33-52. DOI: 10.1111/1099-1123.00324
7. Boone, J.P., Khurana, I.K. and Raman, K. (2012). Audit market concentration and auditor tolerance for earnings management. *Contemporary Accounting Research*, 29(4), pp. 1171–1203. https://doi.org/10.1111/j.1911-3846.2011.01144.x
8. Bromiley, P. and Rau, D. (2016). Social, behavioral, and cognitive influences on upper echelons during strategy process. *Journal of Management*, 42(1), pp. 174–202. https://doi.org/10.1177/0149206315617240.
9. Bryan, C.J., Adams, G.S. and Monin, B. (2013). When cheating would make you a cheater: Implicating the self prevents unethical behavior. *Journal of Experimental Psychology*, 142(4),, pp. 1001-1005. https://doi.org/10.1037/a0030655
10. Buchholz, F., Lopatta, K. and Maas, K. (2020). The deliberate engagement of narcissistic CEOs in earnings management. *Journal of Business Ethics*, *167*(4), pp. 663-686. https://link.springer.com/article/10.1007/s10551-019-04176-x
11. Bushman, R., Davidson, R. Dey, A. and Smith, A. (2018). Bank CEO materialism: Risk controls, culture, and tail risk", *Journal of Accounting and Economics*, 65(1), pp. 191-220. https://www.sciencedirect.com/science/article/abs/pii/S0165410117300824
12. Campbell, W.K. and Miller, J.D. (2011). The handbook of narcissism and narcissistic personality disorder: Theoretical approaches, empirical findings, and treatments. Hoboken, NJ: John Wiley & Sons. https://doi.org/10.1002/9781118093108
13. Campbell, W.K., Goodie, AS and Foster, J.D. (2004). Narcissism, confidence, and risk attitude. *Journal of Behavioral Decision Making*, 17(4), pp. 297–311. https://doi.org/10.1002/bdm.475.
14. Campbell, W.K., Reeder, G.D., Sedikides, C. and Elliot, A.J. (2000). Narcissism and comparative self-enhancement strategies. *Journal of Research in Personality*, 34(3), pp. 329–347. https://doi.org/10.1006/jrpe.2000.2282.
15. Capalbo, F., Frino, A., Lim, M.Y., Mollica, V. and Palumbo, R. (2018). The Impact of CEO Narcissism on Earnings Management. *Abacus*, 54(2), pp. 210-226. https://doi.org/10.1111/abac.12116
16. Carpenter, M.A., Geletkanycz, MA and Sanders, W.G. (2004). Upper echelons research revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, 30(6), pp. 749–778. https://doi.org/10.1016/j.jm.2004.06.001.
17. Chen, C.W.W., Collins, D., Kravet, T. and Mergenthaler, R.D. (2013). Financial statement comparability and the efficiency of acquisition decisions. The *University of Iowa and the University of Texas at Dallas. Available at:* http://ssrn.com/abstract=2169082
18. Chen, F., Francis, J.R. and Hou, Y. (2019). Opinion Shopping through Same-Firm Audit Office Switches. *Available at SSRN:* https://ssrn.com/abstract=2899888 or http://dx.doi.org/10.2139/ssrn.2899888
19. Chen, F., Peng, S., Xue, S., Yang, Z. and Ye, F. (2015). Do Audit Clients Successfully Engage in Opinion Shopping? Partner-Level Evidence. *Journal of Accounting Research*,

54(1), pp. 79–112. https://doi.org/10.1111/1475-679x.12097
20. Chen, G. (2020). Related Party Transactions and Opinion Shopping. *Journal of Applied Finance & Banking*, 10(1), pp. 173-202. https://www.proquest.com/openview/a39c056697a8aeda36b4b633c2b3f7bd/1?pq-origsite=gscholar&cbl=796381
21. Choi, M.S. and Zéghal, D. (1999). The effect of accounting firm mergers on international markets for accounting services. *Journal of International Accounting, Auditing and Taxation*, 8(1), pp. 1-22. https://doi.org/10.1016/S1061-9518(99)00002-6
22. Chou, E. (2015). What's in a name? The toll e-signatures take on individual honesty. *Journal of Experimental Social Psychology*, 61(9), pp. 84-95. https://doi.org/10.1016/j.jesp.2015.07.010
23. Chow, C.W. and Rice, SJ (1982). qualified audit opinions and auditor switching. *The Accounting Review*, 57(2), pp. 326-335. https://www.jstor.org/stable/247018
24. Davidson, R., Dey, A. and Smith, A. (2015). Executives' "off-the-job" behavior, corporate culture, and financial reporting risk", *Journal of Financial Economics*, 117(1), pp. 5-28. https://doi.org/10.1016/j.jfineco.2013.07.004
25. Davidson. RA and Neu, D. (1993). A note on Association between Audit Firm size and Audit Quality. *Contemporary Accounting Research*, 9(2), pp. 479-488. https://doi.org/10.1111/j.1911-3846.1993.tb00893.x
26. Davis, S., DeZoort, F.T. and Kopp, L.S. (2006). The effect of obedience pressure and perceived responsibility on management accountants' creation of budgetary slack, *Behavioral Research in Accounting*, 18(1), pp. 19–35. https://doi.org/10.2308/bria.2006.18.1.19.
27. DeFond, M.L. and Zhang, J. (2014). A review of archival auditing research. The University of Southern California. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2411228
28. DeFond, M.L. and Park, C.W. (2001). The reversal of abnormal accruals and the market valuation of earnings surprises, *The Accounting Review*, 76(3), pp. 375–404. https://doi.org/10.2308/accr.2001.76.3.375 .
29. Engelen, A., Neumann, C. and Schmidt, S. (2016). Should entrepreneurially oriented firms have narcissistic CEOs?. *Journal of Management*, 42(3), pp. 698–721. https://doi.org/10.1177/0149206313495413.
30. Eshleman, J.D. and Lawson, B.P. (2017). Audit market structure and audit pricing. *Accounting Horizons*, 31(1), pp. 57-81. https://doi.org/10.2308/acch-51603
31. European Commission (EC). (2010). *Green Paper. Audit Policy: Lessons from the crisis. Brussels, October 13.*
32. Feng, M., Ge, W., Luo, S. and Shevlin, T. (2011). Why do CFOs become involved in material accounting manipulations?. *Journal of Accounting and Economics*, 51(1-2), pp. 21–36. https://doi.org/10.1016/j.jacceco.2010.09.005.
33. Gaio, C. and Raposo, C. (2011). Earnings quality and firm valuation: International evidence. *Accounting & Finance*, 51(2), pp. 467–499. https://doi.org/10.1111/j.1467-629X.2010.00362.x.
34. Gerstner, W.C., Konig, A. Enders, A. and Hambrick, D.C. (2013). CEO narcissism, audience engagement, and organisational adoption of technological discontinuities. *Administrative Science Quarterly*, 58(2), pp. 257–291. https://doi.org/10.1177/0001839213488773.
35. Ghaznavi Doozandeh, J., Khozein, A., Garkaz, M. and Maetoofi, A. (2021). Auditors' deviant decision-making model based on conflict of interest. *Iranian Journal of Finance*, 5(1), 31-60. https://doi.org/10.30699/ijf.2021.123043

36. Graham, J.R., Harvey, C.R. and Puri, M. (2013). Managerial attitudes and corporate actions. *Journal of Financial Economics*, 109(1), pp. 103–121. https://doi.org/10.1016/j.jfineco.2013.01.010.
37. Grant, P. and McGhee, P. (2013). Organisational Narcissism: A Case of Failed Corporate Governance? In H. Harris, G. Wijesinghe, & S. McKenzie (Eds.).The heart of the good institution: Virtue ethics as a framework for responsible management, Vol. 38, Dordrecht: Springer. https://link.springer.com/chapter/10.1007/978-94-007-5473-7_8
38. Gul, F.A., Wu, D. and Yang, Z. (2013). Do individual auditors affect audit quality? Evidence from archival data. *The Accounting Review*, Vol. 88 No. 6, pp. 1993–2023. https://doi.org/10.2308/accr-50536
39. Habib, A., and Bhuiyan, M.B. (2011). Audit Firm Industry Specialisation and The Audit Report Lag. *Journal of International Accounting, Auditing and Taxation*, 20(1), pp. 32–44. https://doi.org/10.1016/j.intaccaudtax.2010.12.004
40. Ham, C., Lang, M., Seybert, N. and Wang, S. (2017). CFO narcissism and financial reporting quality. *Journal of Accounting Research*, 55(5), pp. 1089-1135. https://doi.org/10.1111/1475-679X.12176.
41. Hambrick, D.C. and Mason, P.A. (1984). Upper echelons: The organisation as a reflection of its top managers. *Academy of Management Review*, 9(2), pp. 193–206. https://doi.org/10.5465/ AMR.1984.4277628
42. Harlez, Y. and Malagueño, R. (2016). Examining the joint effects of strategic priorities, use of management control systems, and personal background on hospital performance. *Management Accounting Research*, 30(1), pp. 2–17. https://doi.org/10.1016/j.mar.2015.07.001.
43. Harris, J. and Bromiley, P. (2007). Incentives to Cheat: The influence of executive compensation and firm performance on financial misrepresentation. *Organization Science*, 18(3), pp. 350–367. https://doi.org/10.1287/orsc.1060.0241.
44. Hayward, M.L.A. and Hambrick, D.C. (1997). Explaining the premiums paid for large acquisitions: Evidence of CEO hubris. *Administrative Science Quarterly*, 42(1), pp. 103–127. https://doi. org/10.2307/2393810.
45. He, X., Pittman, J. and Rui, OM (2016). Reputational Implications for Partners After a Major Audit Failure: Evidence from China. *J Bus Ethics* 138(4), 703–722. https://doi.org/10.1007/s10551-015-2770-6
46. Healy, P.M. and Wahlen, J.M. (1999). A review of the earnings management literature and its implications for standard setting. *Accounting Horizons*, 13(4), pp. 365–383. https://doi.org/10.2308/acch.1999.13.4.365.
47. Hiebl, M.R.W. (2014). Upper echelons theory in management accounting and control research. *Journal of Management Control*, 24(3) pp. 223–240. https://doi.org/10.1007/s00187-013-0183-1.
48. Horvath, S. and Morf, C.C. (2010). To be grandiose or not to be worthless: Different routes to self-enhancement for narcissism and self-esteem. *Journal of Research in Personality*, 44(5), pp. 585–592. https://doi.org/10.1016/j.jrp.2010.07.002.
49. Hsieh, T.S. and Bedard, J.C. and Johnstone, K.M. (2014). CEO Overconfidence and Earnings Management During Shifting Regulatory Regimes. *Journal of Business Finance & Accounting*, 41(9-10), pp. 1243-1268. https://doi.org/10.1111/jbfa.12089
50. Huang, T.C., Chang, H. and Chiou, J.R. (2015). Audit market concentration, audit fees, and

audit quality: Evidence from China. *Auditing: A Journal of Practice & Theory*, 35(2), pp. 121-145. https://doi.org/10.2308/ajpt-51299

51. Hudaib, M. and Cooke, T.E. (2005). The Impact of Managing Director Changes and Financial Distress on Audit Qualification and Auditor Switching. *Journal of Business Finance and Accounting*, 32(9/10), pp. 1703-1739. https://doi.org/10.1111/j.0306 686X.2005.00645.x
52. Johnson, W.B. and Lys, T. (1995). The Market for Audit Services: Evidence from Voluntary Auditor Change. *Journal of Accounting and Economics*, 12(1-3), pp. 281-308. doi.org/10.1016/0165-4101(90)90051-5
53. Jorgenson, D. (1977). Signature size and dominance: A brief note. *Journal of Psychology*, 97(2), pp. 269-270. https://doi.org/10.1080/00223980.1977.9923972
54. Kallapur, S., Sankaraguruswamy, S. and Zang, Y. (2010). *Audit market competition and audit quality*. Indian School of Business. https://www.independentdirectorsdatabank.in/pdf/partners/isb/Audit_Market_Concentration_and_Audit_Quality.pdf
55. Kaplan, S.E. (2001). Ethically related judgments by observers of earnings management. *Journal of Business Ethics*, 32 (4), pp. 285–298. https://doi.org/10.1023/A:1010600802029.
56. Kettle, K.L. and Haubl, G. (2011). The signature effect: Signing influences consumption related behavior by priming self-identity. *Journal of Consumer Research*, 38(3), pp. 474-489. https://doi.org/10.1086/659753
57. Khani, Z. and Rajabdorri, H. (2019). The Relationship between Audit Fees and Stock Price Crash Risk. *Iranian Journal of Finance*, 3(4), pp. 76-89. https://doi.org/10.22034/ijf.2020.187841.1027
58. Kontesa, M., Brahmana, R. and Tong, A.H.H. (2020). Narcissistic CEOs and their earnings management. *Journal of Management and Governance*, 25(1), pp. 223-249. https://doi.org/10.1007/s10997-020-09506-0
59. Koole, S.L. and Pelham, B.W. (2003). On the nature of implicit self-esteem: The case of the name letter effect. In S. J. Spencer, S. Fein, M. P. Zanna, and J. M. Olson (Eds.) *Motivated social perception: The Ontario symposium, (*Vol. 9, pp. 93–116). Lawrence Erlbaum Associates Publishers. https://psycnet.apa.org/record/2003-04467-005
60. Lakey, C.E., Rose, P., Campbell, W.K. and Goodie, A.S. (2008). Probing the link between narcissism and gambling: The mediating role of judgment and decision-making biases. *Journal of Behavioral Decision Making*, 21(2), pp. 113–137. https://doi.org/10.1002/bdm.582.
61. Lennox, C. (2000). Do companies successfully engage in opinion shopping? Evidence from the UK. *Journal of Accounting and Economics*, 29(3), pp. 321–337. doi.org/10.1016/S0165 4101(00)00025-2
62. Lubit, R. (2002). The long-term organisational impact of destructively narcissistic managers. *The Academy of Management Executive*, 16(1), pp. 127–138. https://doi.org/10.5465/ame.2002.6640218
63. Marquez-Illescas, G., Zebedee, AA and Zhou, L. (2018). Hear me write: Does CEO Narcissism affect disclosure?. *Journal of Business Ethics*, 159(2), pp. 401-417. https://doi.org/10.1007/s10551-018-3796-3.
64. Munoz Izquierdo, N. (2018). The impact of auditing on financial distress prediction.Thesis. Universidad Complutense de Madrid. https://eprints.ucm.es/id/eprint/49831/
65. McManus, J. (2018). Hubris and unethical decision making: The tragedy of the uncommon. *Journal of Business Ethics*, 149(1), pp. 169-185. https://doi.org/10.1007/s10551-016-3087-

9.
66. Merchant, K.A. and Rockness, J. (1994). The ethics of managing earnings: An empirical investigation. *Journal of Accounting and Public Policy*, 13(1), pp. 79–94. https://doi.org/10.1016/0278-4254(94)90013-2.
67. Morelli, M. and Lecci, F. (2014). Management control systems (MCS) change and the impact of top management characteristics: The case of healthcare organisations. *Journal of Management Control*, 24(3), pp. 267–298. https://doi.org/10.1007/s00187-013-0182-2.
68. Naranjo-Gil, D., Maas, V.S. and Hartmann, F.G.H. (2009). How CFOs determine management accounting innovation: An examination of direct and indirect effects. *European Accounting Review*, 18(4), pp. 667–695. https://doi.org/10.1080/09638180802627795.
69. Nasir, N.A.b. Ali, M.J. Razzaque, R.M.R. and Ahmed, K. (2018). Real earnings management and financial statement fraud: evidence from Malaysia. *International Journal of Accounting & Information Management*, 26(4), pp. 508-526. https://doi.org/10.1108/IJAIM-03-2017-0039
70. National Commission on Fraudulent Financial Reporting (1987), "*Report of the National Commission on Fraudulent Financial Reporting",* New York.
71. Newton, N., Persellin, J.S., Wang, D. and Wilkins, M.S. (2016) Internal control opinion shopping and audit market competition. *The Accounting Review*, 91(2), pp. 603-623. https://doi.org/10.2308/accr-51149
72. Newton, N.J., Wang, D. and Wilkins, M.S. (2013). Does a lack of choice lead to lower quality? Evidence from auditor competition and client restatements. *Auditing: A Journal of Practice & Theory*, 32(3), pp. 31– 67. https://doi.org/10.2308/ajpt-50461
73. O'Reilly, C.A., Doerr, B., Caldwell, D.F. and Chatman, J.A. (2014). Narcissistic CEOs and Executive Compensation. *The Leadership Quarterly*, 25(2), pp. 218-231. https://doi.org/10.1016/j.leaqua.2013.08.002
74. Olsen, K.J., Dworkis, K.K. and Young, S.M. (2014). CEO narcissism and accounting: A picture of profits. *Journal of Management Accounting Research*, 26(2), pp. 243–267. https://doi.org/10.2308/jmar-50638
75. Osma, G.B., Belen, G.A.N. Elena, D.H. and Simona, R. (2019). *Opinion-Shopping: Firm versus Partner-Level Evidence.* Available at http://dx.doi.org/10.2139/ssrn.2776609
76. Patel, P.C. and Cooper, D. (2014). The harder they fall, the faster they rise: Approach and avoidance focus in narcissistic CEOs. *Strategic Management Journal*, 35(10), pp. 1528–1540. https://doi.org/10.1002/smj.2162.
77. Petrenko, O.V., Aime, F., Ridge, J. and Hill, A. (2016). Corporate social responsibility or CEO narcissism? CSR motivations and organisational performance. *Strategic Management Journal*, 37(2), pp. 262–279. https://doi.org/10.1002/smj.2348.
78. Pulic, A. (2000). VAIC-An Accounting Tool for IC Management. *International Journal of Technology Management*, 20(5-8), pp. 702-714. https://www.inderscienceonline.com/doi/abs/10.1504/IJTM.2000.002891
79. Rauthmann, J.F. (2012). The Dark Triad and interpersonal perception: Similarities and differences in the social consequences of narcissism, Machiavellianism, and psychopathy. *Social Psychological and Personality Science*, 3(4), pp. 487–496. https://doi.org/10.1177/1948550611427608
80. Rudman, L., Dohn, M. and Fairchild, K. (2007). Implicit self-esteem compensation: Automatic Threat defense. *Journal of Personality and Social Psychology*, 93(5), pp. 798-813.

https://doi.org/10.1037/0022-3514.93.5.798
81. Salehi, M. and Moghadam, S.M. (2019). The relationship between management characteristics and firm performance. *Competitiveness Review*, 29(4), pp. 440-461. https://doi.org/10.1108/CR-11-2018-0070
82. Salehi, M., Mahmoudabadi, M. and Adibian, M. (2018). The relationship between managerial entrenchment, earnings management, and firm innovation. *International Journal of Productivity and Performance Management*, 67(9), pp. 2089-2107. https://doi.org/10.1108/IJPPM-03-2018-0097
83. Sardari, R., Setayesh, M.R., Kordlouie, H. and Banimahd, B. (2021). Studying the Moderating Role of Audit Committee Independence in the Relationship between CEO Narcissism and Real Earnings Management. *Iranian Journal of Finance*, 5(3), 58-77. https://doi.org/10.30699/ijf.2021.247085.1155
84. Schrand, C.M. and Zechman, S.C. (2012). Executive Overconfidence and the Slippery Slope to Financial Misreporting. *Journal of Accounting and Economics*, 53 (1-2), pp. 311-329. http://dx.doi.org/10.1016/j.jacceco.2011.09.001
85. Securities and Exchange Commission (SEC). (1988), "Disclosure amendments to Regulation S-K, Form 8- K and schedule 14A regarding changes in accountants and potential opinion-shopping situations", *SEC Financial Reporting Release*, No.31, Washington, DC.
86. Seifzadeh, M., Salehi, M., Abedini, B. and Ranjbar, M.H. (2020). The relationship between management characteristics and financial statement readability. *EuroMed Journal of Business*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/EMJB-12-2019-0146
87. Smith, D.B. (1986). Auditor subject to opinions, disclaimers and auditor changes. *Auditing: A Journal of Practice and Theory*, 6 (13), pp. 95-108.
88. Su, S., Baird, K. and Schoch, H. (2015). The moderating effect of organisational life cycle stages on the association between the interactive and diagnostic approaches to using controls with organisational performance. *Management Accounting Research*, 26(2), pp. 40–53. https://doi.org/10.1016/j.mar.2014.09.001.
89. Treasury, US (2008). Advisory Committee on The Auditing Profession: Draft report-May 5. *Washington: D. C. Government Printing Office*.https://www.treasury.gov/about/organizational-structure/offices/documents/final-report.pdf
90. US Senate. (1976). Accounting Establishment: A Staff Study. Report of the Subcommittee on Reports, Accounting, and Management of the Committee on Government Operations (Metcalf Committee Report). US Government Printing Office, Washington, DC. https://archive.org/stream/accstabl00unit/accstabl00unit_djvu.txt
91. Van Scotter, J.R. and Roglio, K.D.D. (2020). CEO bright and dark personality: Effects on ethical misconduct. *Journal of Business Ethics*, 164(4), pp. 451-475. https://doi.org/10.1007/s10551-018-4061-5.
92. Wang, Q., Wong, T.J. and Xia, L. (2008). State ownership, the institutional environment, and auditor choice: Evidence from China. *Journal of Accounting and Economics*, 46(1), pp. 112-134. https://doi.org/10.1016/j.jacceco.2008.04.001
93. Woo, E.S. and Chye Koh, H. (2001). Factors Associated with Auditor Change: A Singapore Study. *Accounting and Business Research*, 31(2), pp. 133-44. https://doi.org/10.1080/00014788.2001.9729607

94. Yang, Z. (2013). Do political connections add value to audit firms? Evidence from IPO audits in China. *Contemporary Accounting Research*, 30(3), pp. 891-921. https://doi.org/10.1111/j.1911-3846.2012.01177.x
95. Zhang, H.H. (2017). The Relationship of Abnormal Audit Fees and Accruals: Bargain Power or Cost Control?. *Open Journal of Accounting*, 6(3), pp. 82-94. https://doi.org/10.4236/ojacct.2017.63007
96. Zhou, Y. (2017). Narcissism and the art market performance. *European Journal of Finance*, 23(13), pp. 1197-1218. https://doi.org/10.1080/1351847X.2016.1151804
97. Zhu, D.H. and Chen, G. (2015). CEO narcissism and the impact of prior board experience on corporate strategy. *Administrative Science Quarterly*, 60(1), pp. 31–65. https://doi.org/10.1177/0001839214554989.
98. Zweigenhaft, R. and Marlowe, D. (1973). Signature size: Studies in expressive movement. *Journal of Consulting and Clinical Psychology*, 40(3), pp. 469-473. https://doi.org/10.1037/h0034503

How to cite this article:
Seifzadeh, M., Salehi, M., Abedini, B., Khanmohammadi, M., Ranjbar, M. (2021). Management Characteristics and Audit Opinion Shopping. Iranian Journal of Accounting, Auditing and Finance, 5(4), 77-99. doi: 10.22067/ijaaf.2021.41404
URL: https://ijaaf.um.ac.ir/article_41404.html

Ferdowsi University of Mashhad

Iranian Journal of
Accounting, Auditing & Finance

Received: 2021-11-04
Accepted after revision: 2021-12-10
Published online: 2021-12-24

RESEARCH ARTICLE DOI: 10.22067/ijaaf.2021.41381

Developing a Model for Improving Tax Auditing Quality in Iran

Eisa Abyazi

Department of Accounting, Marand Branch, Islamic Azad University, Marand, Iran

Heydar Mohammadzadeh Salteh

Department of Accounting, Marand Branch, Islamic Azad University, Marand, Iran

Yaqoub Aghdam Mazraeh

Department of Accounting, Sofian Branch, Islamic Azad University, Sofian, Iran

Ali AkbBar Nonahal Nahr

Department of Accounting, Bostanabad Branch, Islamic Azad University, Bostanabad, Iran

Abstract

Given the importance of taxes and tax revenues in the country's economic development, it is crucial to provide a comprehensive model for tax auditing quality. The primary purpose of this study is to design a comprehensive model of tax auditing quality through a mixed method. The qualitative part approach is based on data-based theory. Data collection instruments were semi-structured interviews with 20 partners of auditing firms, managers of the Iranian Association of Certified Public Accountants, and tax officials selected by snowball sampling and content analysis methods. The axial category of the tax auditing quality model was developed, and the final model was presented according to the causal conditions, contextual conditions, intervening conditions, strategies and consequences. In the quantitative part, research hypotheses were developed, and a questionnaire was designed to test them. The questionnaires were filled by 335 experts who did not participate in the qualitative part, and the hypotheses were tested using the structural equation method. Auditing Quality improvement model was developed, which included two major parts, including auditing service providers and auditing services recipients by discovering and identifying strategic factors, intervening (contextual) conditions and their implications along with contextual conditions.

Keywords: Tax Auditing Quality, Systematic Approach, Structural Equations, Qualitative Research

Corresponding author: Heydar Mohammadzadeh Salteh
Email: *h_salteh@marandiau.ac.ir*

Number of Figures: 4
Number of Tables: 5
Number of References: 22
Pages: 18

https://ijaaf.um.ac.ir
E-Issn: 2717-4131

RESEARCH ARTICLE

1. Introduction

Accounting as a system provides the information needed by users to make tax decisions. One group that uses financial and tax reports is the government which uses this information in tax operations and corporate taxation. In this regard, providing transparent and comparable financial information is an essential element of tax decisions. In tax laws and regulations, the source of financial information extraction is legal offices, and their importance relies on their compliance with tax quality accounting standards. Taxation is one of the factors influencing accounting procedures in taxable income. In the modern era, tax managers seek to restructure the global economy around developing trade tax capacity and the quality of tax audits according to environmental characteristics in each country, which is known as a new paradigm for labour tax avoidance in the information society. On the other hand, by reviewing the theoretical foundations, one should first become acquainted with the basic concepts pertinent to taxation and its special type, i.e., the quality of tax audit, and then take steps to understand its advantages and disadvantages in order to optimize and implement it. Since establishing a modern tax system is one of the determined goals in the framework of reforming the tax system of the Islamic Republic of Iran, the quality of taxes is, therefore, one of the results of implementing the government's macro planning.

This plan is a crucial step the government takes to collect higher quality taxes than its paper form. The mentioned plan, like its macro plan, i.e., the shadow government of the efforts of all the pillars of the society, will be useful. By targeting the tax audit plan to increase its quantity and quality at the required levels and trying to solve the problems of this plan, there will be a lot of hope in increasing the level of government tax revenues. Therefore, it is expected that the problems of tax collection of this vital artery of the country's administration will be solved in information technology and Humanities. Utilizing the experience of implementing this efficient plan in other developed and developing countries can also be very useful in saving the rework costs of this macro plan. There are two distinct aspects of equality or justice in a tax system: “Horizontal justice” refers to the same tax for people in the same position, and “vertical justice” refers to different tax behaviour in different positions. In this study, position means the ability to pay. Consumption taxes should be reduced because low-income households generally spend more on their income and pay a higher percentage of their income as taxes.

Such frugality will increase government revenue; in other words, the establishment of this system of tax auditing quality will increase tax revenue and reduce tax evasion of taxpayers. The fact is that in commercial trading, the sellers may be physically stable in only one place but sell their goods and services all over the world. In this case, although there are hundreds of points of sale for a business, there will be only one place to pay taxes. Some experts believe that in such a situation, the number of tax-paying places is much less than the number of points of sale, and as a result, the government's tax revenue is very small compared to the volume of trading. Thus, to validate the developed model, a case study will be conducted on the proposed comprehensive model for the quality of tax auditing according to the environmental characteristics and conditions prevailing in the country.

Problems in Iran's tax system provoked governmental officials to make serious arrangements for the tax system. A plethora of problems have been observed, including flaws and inconsistencies in inefficient tax policies, systems and processes, lack of a unified view of taxpayers and their information, lack of proper services to taxpayers and inadequate knowledge of taxpayers and weak tax culture leads to increased costs and expenses, increased dissatisfaction and complaints, increased volumes of tax evasion and decreased volume of revenues. Considering the importance of recognizing the information of financial statements for the decision making of users, we have tried to answer the most important indicators of the country's tax affairs by identifying the factors affecting the quality

of tax auditing and presenting a model for tax auditing quality.

2. Literature Review and Theoretical Principles of the Study

Tax auditing is one of the basic pillars of accountability to and assurance for information users because accountability and assurance require the existence of reliable and valid information. In order for information to be reliable, it shall be reviewed by a knowledgeable person who is independent of the information provider. In providing timely, relevant, and reliable information, one of the parameters that can help tax auditors make their activities have high quality, efficiency, and effectiveness is the existence of a tax system as a mechanism for information transparency. The special importance and undeniable impact of the quality of tax audits on promoting the detection of financial and tax distortions and creating economic transparency in all public, private and non-profit sectors have led to the public acceptance of wider monitoring of the activities of tax auditors.

Like investors, tax auditors look at financial statements to determine the government's share of profits. In addition to overconfidence in their own information, they are also often scepticism of financial statement items. This scepticism is important from two perspectives: 1. Whether the information contained in the financial statements is consistent with the tax database (although there is no reasonable assurance that the tax database information is necessarily correct); 2. Whether the items of the submitted financial statements have been prepared to conceal the actual tax and whether the items affecting the taxable income have been disclosed correctly and following the law.

One factor that moderates the behaviour of tax auditors is the behaviour of other users. For example, stock market investors are always looking for helpful information and are sensitive to the distortion of financial statement items; therefore, the presence of a company on the stock market means that there is useful and reliable information for tax auditors.

Taxes are one of the main policy tools of governments and the most important source of revenue and related expenditures. In developed countries, taxes are a strong lever for fiscal and economic policies, social activities, and government spending. Taxation is one of the main sources in determining countries' budgets, and governments are striving to replace taxes with oil to provide funding and create social justice through taxes. Evidence from studies conducted on tax evasion shows that the tendency of Iranian companies to avoid paying taxes is high, which leads to the government’s tax revenue.

Farmer. (1993) promote an approach for classifying auditors according to their riskiness. Analytical studies on auditing typically consider auditors safe despite the relation between risk aversion and auditing decision-making. Although analytical theories are needed to generate predictions and interpretations, most auditing research is empirical. Only a few analytical articles address auditors’ attitudes toward risk. Consider auditors’ risk aversion in liability and third party insurance.

In the auditing profession, the regulatory structures for auditing are in line with the legislative requirements of these organizations, which may have a purely governmental structure, or may have been established by professional bodies and monitored by the government, or operate independently. Recent changes in the legislative audit structures in some countries, including the United States, Canada, and France, reflect the effects of external pressures from global markets that call for standard, structured legislative procedures for global auditing. This may lead to convergence and similarity of the legislative structures of different countries. Naturally, pretence may also occur with these pressures. The overall decision is close to the audit situation, focusing on the effects of auditors’ risk ambiguity. All of these analytical studies ignore tax. Therefore, this study helps fill this research gap

by discussing questions based on an analytical research model.

The auditing quality is more related to the office's characteristics than the auditing company's characteristics in terms of qualified reports. Therefore, the auditing quality should be examined at the partner level, not at the level of the audit firm. Since the attitude of decision-makers towards risk in various areas of decision making is considered an important feature., auditors' risk-taking may also play an important role in auditing quality (Hauptman et al., 2014).

Tax evasion for quality inspection may be helpful when the tax system is defined in such a way that it does not change the pre-tax decision or the decision-makers act as “happy taxpayers” by ignoring the environmental characteristics of the tax in the decision (Van Tendeloo, 2007). However, tax systems are not neutral on the risk-taking of decision-makers, and tax auditors are particularly unlikely to ignore tax decisions. A review of tax investigations shows no indication of a relationship between financial auditing and taxation; instead, studies focus on tax audits (Gaaya et al., 2017).

The study uses an analytical approach to examine the relationship between tax auditing quality and auditor taxes and environmental characteristics. This model is based on several simple and limiting assumptions. Nevertheless, this model serves as a useful foundation for extracting clues about the relationship between auditing quality and taxation without claiming that this model has a good basis for quantitative prediction of the relationship between exogenous variables and audit quality. Taxes can significantly affect the quality of auditing. (Kanagaretnam et al., 2016), A tax symmetric to an appropriate tax rate simultaneously affects marginal and contingent auditing costs (Lestari and Nedya, 2019).

While safe auditors maximize their risk, risky auditors maximize their expected profits. Symmetric taxation only affects the level of optimal auditing effort of risky auditors. The analysis provides evidence that the tax does not uniformly affect the optimal auditing impact. Harelimana, 2018). Auditors with low levels of risk-taking may reduce audit efforts, so auditing quality and increased tax rates can affect the level of profit of any organization. This finding shows that only low tax rates are commensurate with the achievement goal (Kirana and Ramantha, 2020).

To date, few studies have been conducted to explain the quality of tax audits on environmental features, and none of them has yielded a comprehensive definition acceptable by professional and legal associations or recognized by the international community. A brief review of the related studies conducted in Iran and other countries follows.

Khwaja, Awasthi, and Loeprick (2011) presented in detail the issues raised at the Istanbul International Conference, including the framework, principles, methods, structure and experiences of different countries in auditing and considered risk management a key element in the strategy of modern tax organization.

Rego and Wilson believe that tax avoidance is a risky activity that can impose costs on companies and managers, and risk-averse managers prefer to arrange less risky tax plans.

Nyarkpoh (2018) examined the effect of trust in the government on the acceptance of tax laws and regulations by the society in Ghana. His research showed that trust in the government positively affects society's acceptance and implementation of tax laws and regulations.

Lai (2019) addresses the issue of whether the clients of the merged auditing firm have decreased the report delay, increased audit costs or reduced audit quality after the merging. These questions are important for a balanced review of company merging because lawmakers focus more on the merging defect than its inversion. Using the merging of auditing firms in Hong Kong as an environment, this paper reports that clients of the merged company have shorter audit reports after merging into the asset industry. The merged company has acquired more than half of the market share. At the same time, there is no evidence that the merged company’s clients have been charged with higher auditing

costs or poor auditing quality after merging. Therefore, the results show that merging auditing firms without relevant problems can benefit clients. As this is a case study in which the market share, industry expertise and professional development of auditing firms must be unique, further research into merging auditing firms is needed to determine whether these results are generalizable. Further, most research has been done in developed countries, and the present study is one of the few types of research done in developing countries.

Jahnke and Weisser (2019) examined the impact of petty corruption on tax ethics in South African countries. The results of their research showed that one of the obstacles to increased willingness to pay taxes could be bribery by government officials. Their research shows that corruption, however small, erodes tax ethics. They also argued that petty corruptions, in addition to directly affecting tax ethics, also reduce the level of public trust in tax officials and thus (indirectly) affect tax ethics.

Da Silva et al. (2019) examined the two policies of compulsory taxation and voluntary taxation in Brazil's context of a slippery slope. Their research showed that a trust-based interaction between taxpayers and tax officials leads to voluntary tax payments. However, the policy of pressure and coercion leads to the imposition of compulsory taxes and taxpayers' reluctance to pay taxes.

Kemme et al. (2020) found that tax evasion rates are low in countries with high tax incentives.

Ozili (2020) stated that tax evasion limits the government's ability to restore the economic and financial system and limits government resources to reduce the impact of abnormal shocks.

In a study entitled "Developing a Model of Tax Auditing Quality in the Iranian VAT system," Taheri et al. (2020) concluded that it is necessary to provide a comprehensive VAT auditing quality per the environmental characteristics prevailing conditions in Iran. In this regard, the grounded theory method was used using the exploratory and qualitative research approaches. For this purpose, they conducted in-depth interviews with 26 experts who had executive experience in VAT auditing in the first half of 2019 and examined the factors affecting the quality of VAT auditing. Finally, they developed "An Integrated Model of VAT Auditing Quality in Iran," which included causal conditions, intervening factors and context, as well as strategies to achieve VAT auditing quality and presented their consequences.

In this study, the VAT auditing quality has been investigated using a systematic approach and considering all components of the governing system in the VAT system of Iran. The research data were analyzed using coding methods, and the main categories and sub-categories (concepts) were extracted with the help of a systematic approach that included two major sections, including providers of VAT auditing services and recipients of VAT auditing services, a model for VAT auditing in Iran was designed. Due to the lack of comprehensive research in Iran, the designed multidimensional model is the result of the views of various experts at the mentioned levels and provides a comprehensive view of the quality of the VAT auditing system in Iran.

Taj Al-Dini (2020) investigated the mediating role of investor support in the relationship between auditing quality and tax avoidance in the companies of the industrial town of Bushehr. The study was descriptive and survey-based. The statistical sample of this study was 200 managers and financial experts, and internal auditors of companies in the industrial town of Bushehr, which had been selected by sampling method in structural equations. For this purpose, 200 questionnaires were distributed among the mentioned population, and finally, 160 questionnaires were collected. In order to test the research hypotheses, SPSS software and PLS software were used. The results showed that the auditing quality has a positive and significant effect on investor support. Investor protection has a positive and significant effect on tax avoidance; Therefore, investor support plays an intermediary role. In addition, the auditing quality has a positive and significant effect on tax avoidance.

RESEARCH ARTICLE

In a study entitled "Exploring the Moderating Role of Auditing Quality in the Relationship between CEO Remuneration and Tax Avoidance," Sabzalipour and Darabi. (2020) stated that tax avoidance is one of the ways to increase cash flow by companies which can be used to finance shareholders. Managers have a strong incentive to avoid paying taxes to increase their rewards because tax avoidance ultimately leads to an increase in net profit and a decrease in cash outflows due to taxes. Independent auditing is considered a controlling factor by the company to address the organization's issues and any changes and manipulations in accounting information. The study mainly aimed to investigate the effect of auditing quality on the relationship between CEO remuneration and tax avoidance. The study was applied in terms of purpose and descriptive-correlational research method. The research sample included 144 companies listed on the Tehran Stock Exchange from 2012 to 2018. Multiple regression models based on combined data was used to test the research hypotheses. Findings showed a significant and positive relationship between CEO remuneration and tax avoidance. Further, the findings indicate that auditing quality has a significant and negative effect on the relationship between CEO remuneration and tax avoidance.

Arab and Jamal Livani (2019) showed that two indicators of forced rotation and optional rotation were used to measure tax avoidance; the tax book difference index was used. The auditor's qualified opinion was also used to assess the auditing quality. After measuring the research variables, multivariate linear regression analysis was used to test the research hypotheses. Hypotheses were also tested using Eviews econometric software and statistical techniques of integrated data. The results of the statistical tests of the research showed that the auditing quality has a mediating effect on the relationship between the optional rotation of the audit firm and the tax book difference. Also, the results showed that the auditing quality does not mediate the relationship between the forced rotation of the audit firm and the tax book difference.

2.1. Research Question

What is the appropriate model to explain the components affecting the tax auditing quality according to environmental characteristics in Iran?

2.2. Research Hypotheses

H1. Causal factors affect the factors that interfere with the tax auditing quality.
H2. Axial contextual factors affect the contextual factors of the tax auditing quality.
H3. Intervening factors affect the axial factors of the tax auditing quality.
H4. Intervening factors affect the strategic factors of the tax auditing quality.
H5. Central factors affect the strategic factors of the tax auditing quality.
H6. Contextual factors affect the strategic factors of the tax auditing quality.
H7. Strategic factors affect the consequences of publishing the tax auditing quality.

3. Research Methodology

The present study has been conducted during 2020.

DOI: 10.22067/ijaaf.2021.41381

RESEARCH ARTICLE

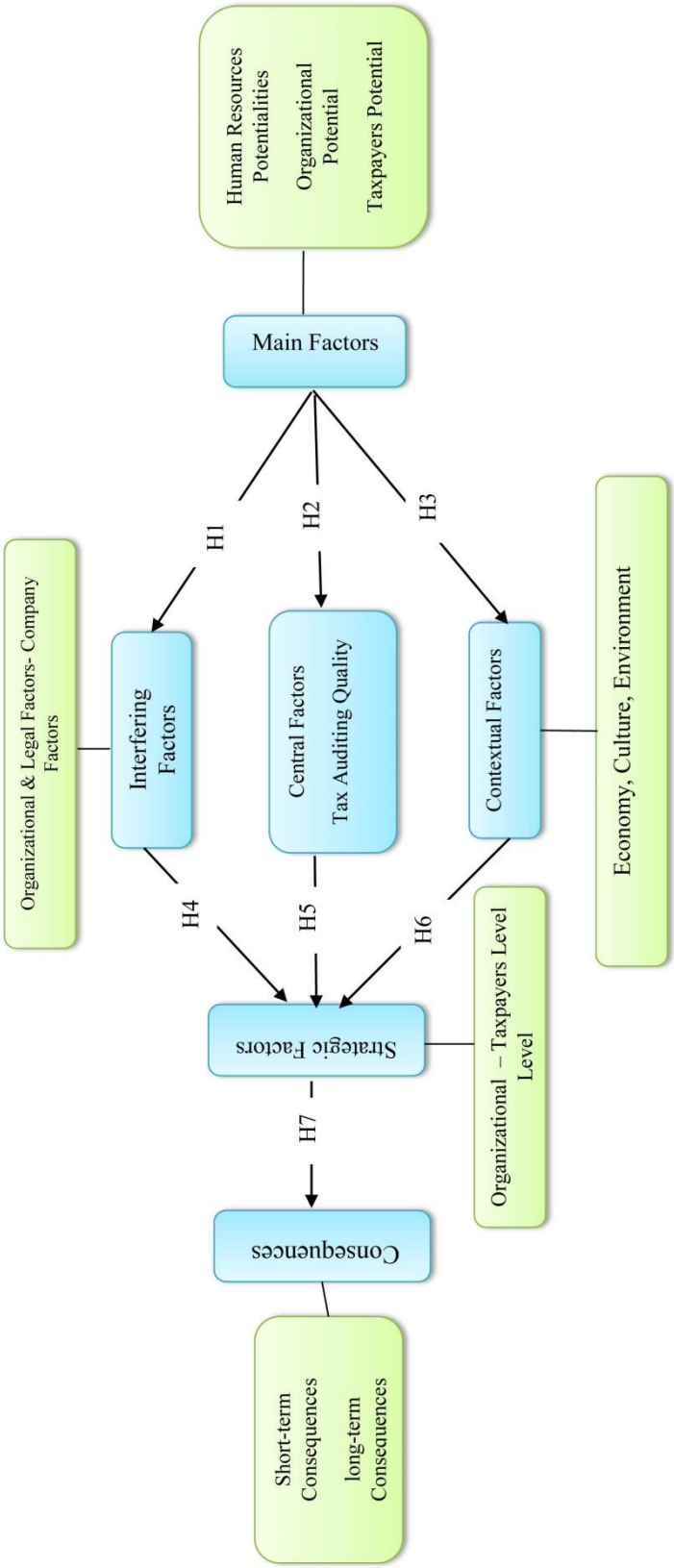


Figure 1. Research Conceptual Model

RESEARCH ARTICLE

The study consists of two qualitative and quantitative parts called the "mixed method". The Grounded Theory (Strauss and Corbin 1990) first collects and analyses qualitative data. This research method is known by different names, including contextual theory, fundamental theory, data processing theory, data-based theory, and data-derived theory. Strauss (1987) introduced the inductive production practices of theory in a qualitative method, relying on accurate and regular data analysis. Experts have proposed various models of this theory. In this study, Strauss' systematic procedure has been used, which focuses on data analysis through regular coding procedure in three open, axial and selective stages, and emphasizes the presence of a logical paradigm or an embodiment of an evolving theory. The most important reason for choosing this method is that first, when there is almost little known about the field of study, second, when the researcher has an understanding of the participant's perceptions and experiences in a particular case, and third when the researcher aims to expound a new theory. In this study, 20 experts are interviewed, and the concepts and categories are then saturated. Most interviews are recorded, except for those who objected to the recording, in which important points were recorded. It is worth mentioning that all the interviewees had more than 5 years of experience in their field of work. The average time of each interview with each of the experts was 49 minutes. The second part uses the questionnaire, Cronbach's alpha, and factor analysis to evaluate the model.

3.1. Research Statistical Population and Sample

The statistical population of the present study includes tax experts, auditors and senior tax officials, certified public accountants and university experts who were experienced in the field of tax auditing in the General Directorate of Tax Affairs and professional auditing institutions, including the Society of Certified Public Accountants, Auditing Organization and Quality Control Committee of Institutions. The audit will take place in 2020. Theoretical sampling continues until the categories reach theoretical saturation. In the research, 20 experts were interviewed, and after conducting these interviews, the concepts and categories were saturated. Most interviews were recorded, except for those who objected to the recording, in which important points were recorded. The interview process was such that the interview started with general questions and with the progress of the interview and depending on the situation, more detailed questions were asked; after each interview, the necessary analysis was done on the data, and the concepts were extracted until the research model was finally determined. In the quantitative section, 335 tax experts were selected.

Table 1. Frequency of participants in the statistical population

Gender		Education	Frequency	percentage	education	frequency	percentage
male	**female**	**25-35**	**98**	**29.50**	**BA**	**281**	**77**
269	69	36-45	134	39.50	MA or MS	79	21.60
81 %	19 %	45-55	89	27	PhD	5	1.50
Total	100 %	Over 56	14	4	total	335	100 %
	335	total	335	100 %	Sum of quantitative statistical population		

3.2. Data Analysis

Open Coding

In open coding, first, the data obtained from the interviews are carefully studied and analyzed. Then the conceptualization is performed, and the conceptually-similar data are labelled. Open coding is done through an in-depth and detailed examination of writings, interviews or documents, line by line and even word by word (Strauss, 1987). Subsequently, the extracted concepts which belong to a common theme or label are classified under one abstract title and category. Finally, out of 20

RESEARCH ARTICLE

interviews conducted, 97 basic concepts were classified into 25 sub-categories. Sub-categories were also compared at a higher level, and categories that had similarities and overlaps were included in the main category; In the end, 12 main categories were obtained. Two examples of interviews and related concepts are as follows:

Table 2: Statistical population of the qualitative section

Category	Position	Number	Age			Education		Job Experience		
			Less than 35	35-45	Over 45	MA or MS	PhD	Between 10-25 years	Between 25-40 years	Over 40 years
IACPA[1]	Member of the Quality Control Committee	3	-	1	2	2	1	-	3	-
Auditing Firm	partner	1	-	-	1	1	-	-	-	1
	Chair of the board	2	-	1	1	1	1	1	1	
	Director-General	1	-	-	1	1	-	-	1	-
	Chair of Taxation	4	-	2	2	3	1	3	1	-
INTA[2]	Chair of Taxation Group	3	-	1	2	2	1	1	2	-
AOS[3]	Director general	2	-	1	1	2	-	-	2	-
Academia	Faculty members	4	2	1	1	-	4	2	2	1
Total		20	2	7	11	12	8	7	12	1

"Politicians' power-seeking in companies leads to influencing and, consequently, selecting individuals through unprofessional methods. The government also supports the manager who the government elects, and for this reason, for example, the standards are even adjusted so that the elected manager can function [independence of government support performance]."

"The challenges I faced were the illiteracy of many involved, the lack of insight into the future, the preference of personal interests over organizational interests at many times, nepotism, and lack of job honour, vain prejudice and lack of responsibility and being an anti-state and anti- nation [knowledge of meritocracy managers]."

Axial Coding

Axial coding is the second stage of data analysis in grounded theory. This step aims to establish a relationship between the categories generated in the open coding step. This coding is called axial because the coding revolves around a category of research, which in this study is "tax auditing quality." This category has been selected as the axial category and is located in the model's centre

1. Iranian Association of Certified Public Accountants
2. Iranian National Tax Administration
3. Audit Organization Services

because its footprint and effect can be seen in most data and the interviewees' quotes. Therefore, this category can be placed in the model's centre, and other categories can be related. The Strauss-Corbin paradigm model has been used for axial coding in this study. This model helps the theorist to have a general understanding of the theoretical process. The components of the paradigm model for axial coding are axial category, causal conditions, context, intervening conditions, strategies and consequences. Different perspectives have been considered to formulate a comprehensive model of tax auditing quality.

Selective Coding and Theory Creation

Selective coding is the main stage of theorizing that systematically relates the axial category to other categories, clarifies those relationships within a narrative, and modifies categories that need further improvement and development. In other words, selective coding is the process of integrating, improving, and refining categories so that the researcher arranges them by creating a particular melody and arrangement between categories to present and shape a theory that is possible through the discovery of the axial category. The axial category expresses the results of the analysis experience in a short phrase consisting of several words. In this study, the axial category is called “tax auditing quality” because a large part of the interviewees’ quotes was about the components they intended to increase their attractiveness and how to develop them, which becomes clear by choosing this title for the axial category. The results of studies conducted in this field and the concepts and categories obtained from interviews with experts led to the development of a model including contextual conditions, causal conditions, intervening factors, strategies and consequences.

4. Research Findings and Relationships between Items Discovered

The research model extracted from the three-stage coding process is described below.

1-**Causal conditions**: among the most important causal conditions which were extracted from the interviews with experts, the reference can be made to human resources potential, job’s meaningfulness, knowledge of talented and specialized people, organizational potential, relationships and interactions, communication and organizational technology, organizational training, taxpayers’ potential, structural features of the company, features of the company's financial reports

2- **Axial category**: tax auditing quality meets the conditions of the axial category.

3- **Strategies**: below are some of the most important strategies that experts have proposed for tax quality:

4.1. Organizational level

Establishing a quality rating system for tax auditors, assessing the quality of tax auditors’ independence, reviewing laws and regulations, establishing a working group for quality control of files, issuing facilitation letters, developing a roadmap and model of auditing operations, issuing supportive and incentive rules, providing appropriate information for economic actors, establishing a comprehensive information system, efficient implementation of electronic automation system

RESEARCH ARTICLE

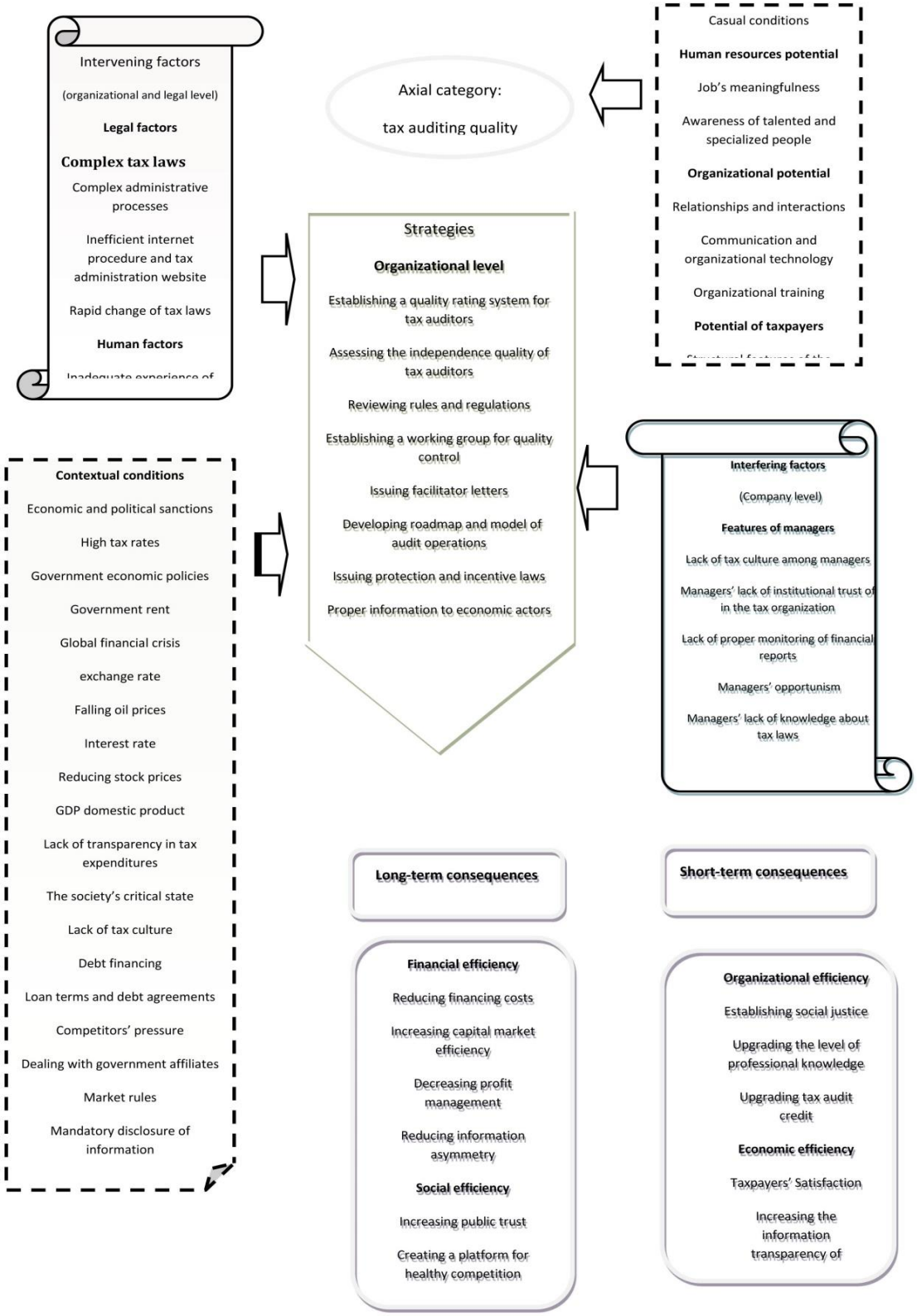


Figure 2. Organizational level

4.2. Taxpayers' level

Selecting qualified managers, teaching international standards to managers, supervising managers, promoting tax culture, increasing transparency in the consumption of tax revenues, establishing a supportive and incentive system for taxpayers mentioned by experts.

4.3. Intervening Conditions

The organizational and legal level

Legal factors

Complex tax laws, complex administrative processes, inefficient internet procedure and tax administration website, rapid change of tax laws, human factors, the insufficient experience of tax experts, tax auditors' negligence.

Company-level

Characteristics of managers, lack of tax culture among managers, managers' lack of institutional trust in the tax organization, lack of proper supervision of financial reports, managers' opportunism, managers' lack of knowledge about tax laws, managers and accountants' negligence, characteristics of the audit firm, the reputation of the auditing firm, firm audit rotation, employer influence on the auditor, hiring inexperienced accountant, accountants' insufficient expertise.

Contextual conditions

Economic and political sanctions, high tax rates, government economic policies, government rents, global financial crisis, exchange rates, declining oil prices, interest rates, declining stock prices, GDP, lack of transparency in tax expenditures, the society's critical state, lack of tax culture, debt financing, loan terms and debt agreements, competitors' pressure, dealings with government affiliates, market rules, forced disclosure of information, conflict of interest between managers and investors.

Consequences

The implications of the tax auditing quality model also include short-term and long-term implications. In the short run, organizational efficiency increases through social justice, professional knowledge, and tax audit credibility. Efficient economic actors also result in promoting the tax culture among the society. Further, through strengthening the tax culture of the society, we will witness transparent economic information among the members of the society and the satisfaction of the taxpayers. Regarding the long-term outcomes, financial efficiency is increased by reducing financing costs, increasing capital market efficiency, reducing earnings management, and reducing information asymmetry. Social efficiency also increases by increasing public trust, creating a healthy competitive environment, and spreading a rule of law culture within society.

5. Research Findings in the Quantitative Section

The validity and reliability of the research instrument (comprehensive model of tax auditing quality according to environmental characteristics) were assessed according to experts' opinions. After sampling (tax administration staff) and collecting 335 final questionnaires, factor analysis was used (study of the described diversity, correlation of variables, factor analysis, estimation of factor loads, etc.). A factor analysis model was fitted to the data using the principal components method after the Varimax period, which also confirmed the selected components for each dimension and thus confirmed the validity and reliability of the instrument statistically. In this study, the most popular

and widely used methods of measuring reliability, e.g., Cronbach's alpha, convergent validity and divergent validity, have been used. Therefore, using the data obtained from the pretest in a sample of 30 members of the study sample, Cronbach's alpha coefficient, convergent validity and validity were calculated. Table 2 shows the Cronbach's alpha coefficient of convergent and divergent validity for the research variables by their constituent dimensions.

Table 2. Validity coefficient and reliability measurement model of reliability of research variables

Variable	A comprehensive model of tax auditing quality according to environmental characteristics					
Dimensions	**Causal factors**	**Intervening factors**	**Axial factors**	**Contextual factors**	**Strategic factors**	**consequences**
components	3	2	1	3	2	2
Cronbach's alpha coefficients	0.82	0.89	۰/۸۳	0.87	0.84	0.85
Convergent validity coefficient	0.75	0.88	0.71	0.88	0.79	0.87
Divergent validity coefficient	0.86	089	0.82	084	0.80	0.81

As can be observed from the data in the table above, Cronbach's alpha coefficient for organizational change and their constituent dimensions is greater than 0.8. The correlation between questions and variables is above 0.5, which indicates that reliability (reliability and validity) is high for the measuring instrument.

Structural Model

The previous section reviewed the overall structural model, and its appropriateness was confirmed. The structural model avoids displaying the model's results, and these results will be mentioned appropriately in the section answering the research questions. It suffices to mention that all the coefficients in the above model are significant at the 95% confidence level and all dimensions and components have a significant role in the model. Further, the values of standardized coefficients for all variables are greater than 0.6, which indicates the important role of each of these variables in explaining the relevant component or dimension.

All factor loads are higher than 0.3. Bentler-Bonett normalized fit indices, relative fit, incremental fit, adaptive indices, and full square have been used to express the model's acceptability. The results obtained from the model are shown in the tables below.

Table 4: Goodness of fit of the model

Model	X2/df	RMSEA
Acceptable amount	3-1	<0.1
Calculated amount	2.491	0.026

RESEARCH ARTICLE

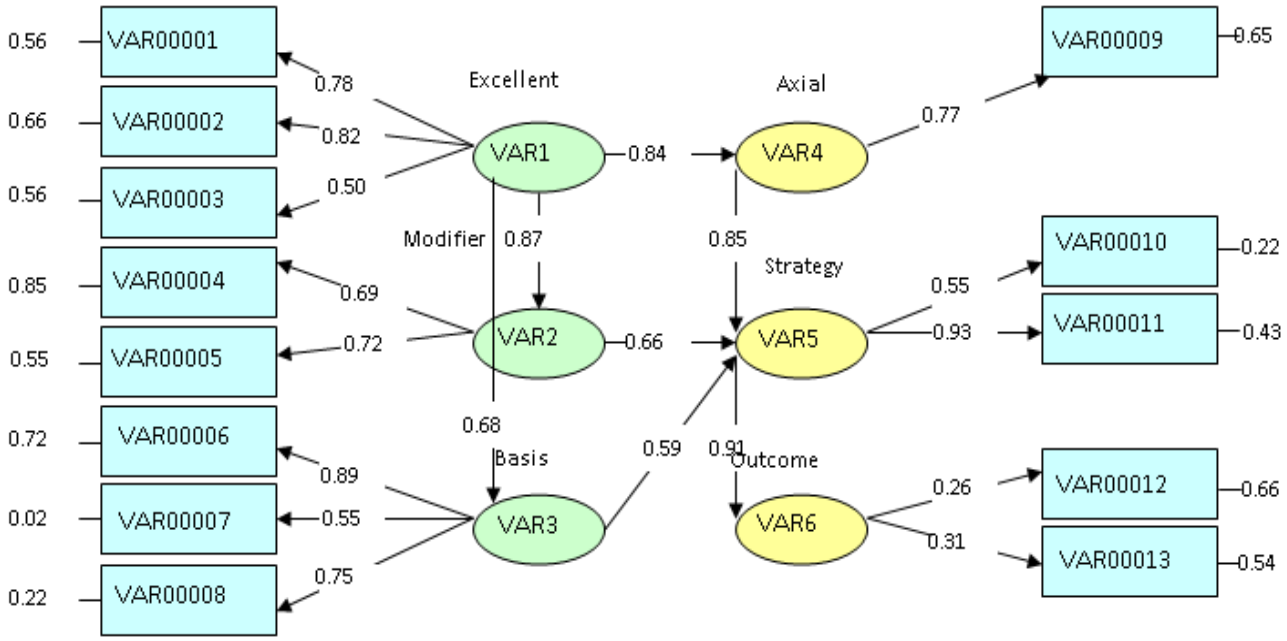


Figure 3. Structural model of factor load of research comprehensive model of tax auditing quality according to environmental characteristics

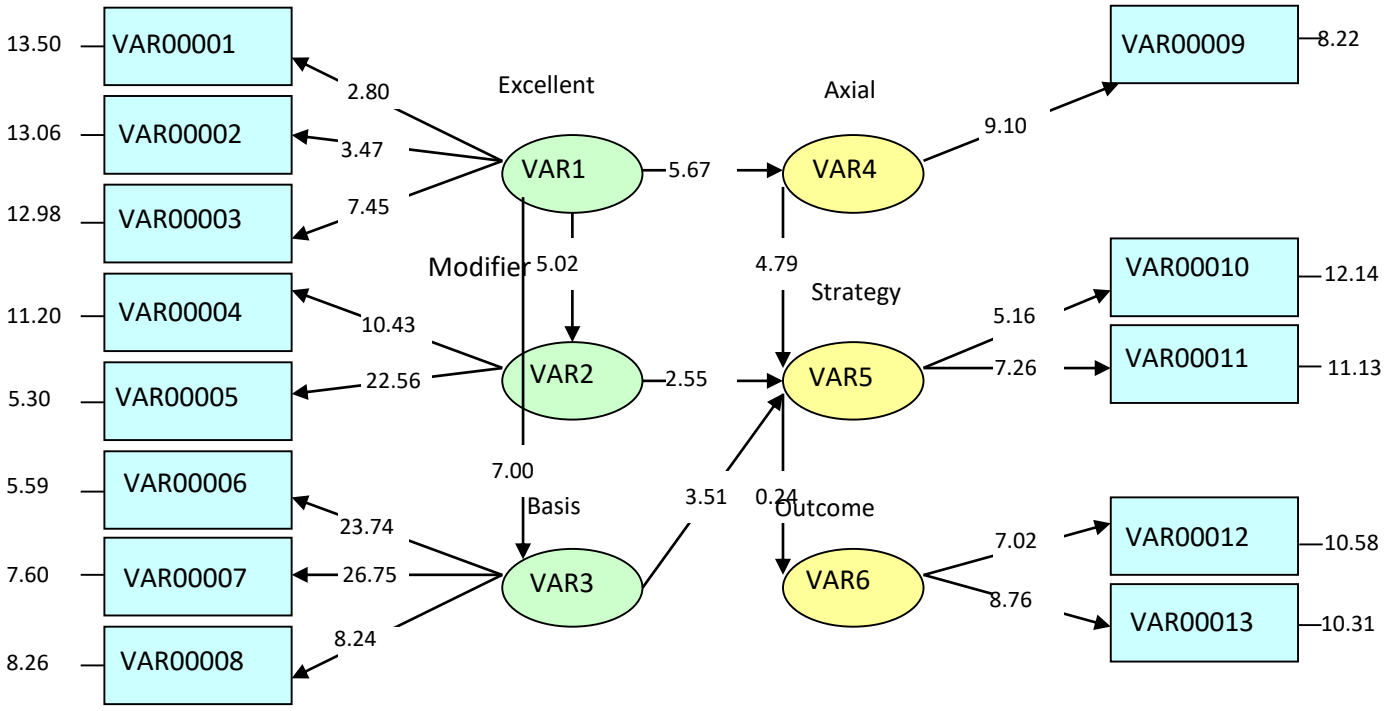


Figure 4. Structural model of significance coefficient of comprehensive research model of tax auditing quality according to environmental characteristics

Root-mean-square Error (RMSE): This index is based on the analysis of the residual matrix. Unlike many fitting indices, it can also be calculated for different confidence intervals. This index is based on a decentralized parameter. If the value of this index is equal to zero, it indicates that Chi-

square is smaller than the degree of freedom, and its allowable value is 0.1. The value of RMSEA obtained is 0.026, which is less than 0.1 according to the standard value.

Normal Chi-Score (X2 / df): This index is obtained by dividing Chi-square by the degree of freedom. The ratio of chi-square to the degree of freedom is equal to 2.491, which is desirable. In general, according to all indicators, it can be said that the model has a good fit. Factor loads indicate the effect of the observed variable in explaining and measuring the hidden variables. A significant level is considered to confirm the factor load. The following is the effect of the identified factors on each other:

Table 5. Investigation of the effect of the identified factors of the model

impact	Load factor	t-statistics	Significance level	Result
Causal factors on intervening factors	0.87	5.02	0.00	Confirmed
Causal factors on axial factors	0.84	5.67	0.00	Confirmed
Causal factors on contextual factors	0.68	7.30	0.00	Confirmed
Intervening factors on strategic factors	0.66	2.59	0.00	Confirmed
Axial factors on strategic factors	0.85	4.70	0.00	Confirmed
contextual factors on strategic factors	0.58	3.61	0.00	Confirmed
Strategic factors on consequences	0.91	8.24	0.00	Confirmed

According to the above table, the factors identified in the data-based model have affected each other. The factor load of causal factors on the intervening factors is 0.87, its t-statistic is 0.52, the factor load of causal factors on axial factors is 0.84, and its t-statistic is 5.67. The factor load of causal factors on contextual factors was 0.68, and its t-statistic was 7.30. The factor loading of interfering factors on strategic factors was 0.66, its t-statistic was 2.59, the factor loading of axial factors on strategic factors was 0.85, and its t-statistic was 70. 4. The factor load of contextual factors on strategic factors was 0.58, its t-statistic was 3.61, the factor load of strategic factors on consequences was 0.91, and its t-statistic was 8.24. Therefore, it can be said that the research model is approved. As can be seen from the table above, all the indicators mentioned above are in the desired range, and therefore the fit of the structural model of the research to the collected data is confirmed. Now, after performing factor analyzes and structural equations and considering the findings, using the results obtained from the analyzes performed, the response and decision-making with the research hypotheses are discussed in the next section.

6. Discussion and Conclusions

Taxation is one of the most crucial pillars of modern civilization. Governments provide taxes and services to their citizens through taxes, but that is not all. Any government can control the country's liquidity by imposing taxes and increasing or decreasing it, leading citizens to use certain goods. Tax auditing is one of the most important tasks for managers because non-transparency of accounts can lead to heavy fines. This research sought to find the answer to the main question, develop a suitable model to explain the components affecting corporate tax compliance in the Iranian tax system and identify the strategies and consequences resulting from using grounded theory.

The model entitled *A Comprehensive Model of Tax Auditing Quality* was extracted from this research, and it was developed in line with the three-stage coding process. In this study, the factors affecting the tax auditing quality have been considered both from the perspective of providers of tax auditing services and recipients of tax auditing services. Moreover, taxpayers and experts have

identified the causal conditions of tax auditing quality from the perspective of tax auditing service providers at different levels.

According to the research model and findings, causal factors included human resources potentials, organizations and taxpayers, which are: knowledge of talented and specialized people, relationships and interactions, communication and organizational technology, organizational training, structural features of the company and characteristics of the company's financial statements.

Therefore, in order to study the issue more widely, an attempt was made to model tax auditing quality from various aspects. Further, intervening factors, strategies and consequences were identified alongside causal conditions, and the contextual conditions for taxation in Iran were also analyzed. After reviewing and analyzing the causal conditions affecting the quality of tax auditing from the perspective of tax audit service providers, it is necessary to pay attention to the strategies and mechanisms used to manage, control and achieve different levels of tax auditing quality.

Strategies: among the most important strategies which experts have proposed for tax quality, reference can be made to the following items:

Organizational level

Establishing a quality rating system for tax auditors, evaluating the quality of tax auditors' independence, reviewing laws and regulations, establishing a working group for quality control of files, issuing facilitation letters, developing a roadmap and model of audit operations, issuing supportive and incentive rules, providing appropriate information for economic actors, establishing a comprehensive information system, efficient implementation of electronic automation system, high moral commitment

Taxpayers' level

By selecting qualified managers, teaching international standards to managers, supervising managers, promoting tax culture, increasing transparency in the consumption of tax revenues, establishing a system of support and incentives for taxpayers mentioned by experts.

In adopting tax auditing quality strategies, some intervening conditions such as empirical skills, the opportunism of managers, complexity and rapid change of governing laws and regulations have made the quality of tax audit difficult. The contextual characteristics of tax auditing influence strategies for achieving the quality of tax auditing. The research results show domestic economic and political factors, macroeconomic factors, cultural factors, market factors, and stock exchange requirements.

The implications of the tax auditing quality model also include short-term and long-term implications. In the short term, organizational efficiency increases through social justice, professional knowledge, and tax audit credibility. According to research on a long-term consequence, financial efficiency increases through reduced financing expenditures, increased capital market efficiency, and reduced information asymmetry. Social efficiency also increases by increasing public trust, creating a healthy competitive environment, and spreading a rule of law culture in society.

References

1. Arab, R. and Jamal Livani, F. (2019), The Rotation of the Institute of Auditing and Tax Avoidance: The Mediating Role of Audit Quality, Second National Conference on Basic Research in Management and Accounting. Tehran. Iran (In Persian).
2. Da Silva, F. P., Guerreiro, R. and Flores, E. (2019). Voluntary versus enforced tax compliance: the slippery slope framework in the Brazilian context. *International Review of Economics*, 66(2),

pp. 147-180, https://doi.org/10.1007/s12232-019-00321-0
3. Farmer, T. A. (1993). "Testing the Effect of Risk Attitude on Auditor Judgment Using Multiattribute Utility Theory", *Journal of Accounting, Auditing & Finance*, 8(1), pp. 91-110, https://doi.org/10.1177%2F0148558X9300800106.
4. Gaaya, S., Lakhal, N., and Lakhal, F. (2017). Does family ownership reduce corporate tax avoidance? The moderating effect of audit quality. *Managerial Auditing Journal*, 32(7), pp. 731-744, https://doi.org/10.1108/MAJ-02-2017-1530.
5. Ghader Dadashzadeh T. A. (2019) Journal of Financial Accounting Knowledge, Vol. 204 No. 179,
6. Harelimana, J. B. (2018). " Effect of tax audit on revenue collection in Rwanda, *Global Journal of Management and Business Research*. Available at: <https://journalofbusiness.org/index.php/GJMBR/article/view/2473
7. Hauptman, L., Horvat, M., and Korez-Vide, R. (2014). " Improving tax administration's services as a factor of tax compliance: The case of tax audit *Lex localis*, Vol. *12 No. 3, pp.* 481-501.
8. Khwaja, M. S., Awasthi, R., & Loeprick, J. (Eds.). (2011). *Risk-based tax audits: approaches and country experiences*. World Bank Publications.
9. Kanagaretnam, K., Lee, J., Lim, C. Y. and Lobo, G. J. (2016). Relation between auditor quality and tax aggressiveness: Implications of cross-country institutional differences. *Auditing: A Journal of Practice & Theory*, 35(4), pp. *1*05-135, https://doi.org/10.2308/ajpt-51417.
10. Kemme, D. M., Parikh, B. and Steigner, T. (2020). Tax morale and international tax evasion. *Journal of World Business*, 55(3), A. 101052. https://doi.org/10.1016/j.jwb.2019.101052.
11. Kirana, I. G. A. M. I. and Ramantha, I. W. (2020). The Effect of Auditor Rotation, TIME Pressure, and Audit Tenure on Audit Quality with Auditor Specialization as Moderation Variable:(Empirical Study of Manufacturing Companies Listed on the Indonesia Stock Exchange in 2014-2018). *International research journal of management, IT and social sciences*, *7*(3), pp. 126-136, https://doi.org/10.21744/irjmis.v7n3.931.
12. Jahnke, B. and Weisser, R. A. (2019). "How does petty corruption affect tax morale in Sub-Saharan Africa?", *European Journal of Political Economy*, 60, (21), A. 101751, https://doi.org/10.1016/j.ejpoleco.2018.09.003.
13. Lai, K. W. (2019). Audit report lag, audit fees, and audit quality following an audit firm merger: Evidence from Hong Kong", *Journal of International Accounting, Auditing and Taxation*, *36*(6), P. 100271, https://doi.org/10.1016/j.intaccaudtax.2019.100271.
14. Lestari, N. and Nedya, S. (2019). The effect of audit quality on tax avoidance. In *International Conference On Applied Science and Technology 2019-Social Sciences Track (iCASTSS 2019)*. Atlantis Press, pp. 72-76, https://dx.doi.org/10.2991/icastss-19.2019.69.
15. Nyarkpoh, M. F. (2018). Trust in Government and Tax Compliance: An Empirical Evidence from Ghana. Doctoral dissertation, University Of Ghana. http://ugspace.ug.edu.gh/handle/123456789/30323.
16. Ozili, P. K. (2020). Tax evasion and financial instability. *Journal of Financial Crime*, 27 (2), pp. 531—539, https://doi.org/10.1108/JFC-04-2019-0051.
17. Strauss, A. L. (1987). *Qualitative analysis for social scientists*. Cambridge university press. USA.
18. Strauss, A. Corbin, J. (1990). A Basics of Qualitative Research Theory Methods. Beverly Hills, CA. Sage.
19. Sabzalipour, F. and Darabi, Z. (2020). Investigating the moderating role of audit quality on the relationship between CEO's remuneration and tax avoidance, Third Conference on Accounting

and Management. Tehran.Iran (In Persian).
20. Taj al-Dini, A. (2020). Investigating the mediating role of capital protection in the relationship between audit quality and tax payment in companies in Bushehr Industrial Park. Sixth National Conference on Applied Research in Accounting Management and Healthy Economy in the Bank.Tehran.Iran.(In Persian)
21. Taheri, M., Jahangirnia, H., khanmohammad, M. and Gholami Jamkarani, R. (2020). Developing the model of tax audit quality in Iran's value-added tax system. *Journal of Management Accounting and Auditing Knowledge*, 9(34), pp. 277.298. https://jmaak.srbiau.ac.ir/article_16145_en.html
22. Van Tendeloo, B. (2007). Audit quality and tax-induced earnings management in UK private firms. Workinig papers No. 2007004.

How to cite this article:
Abyazi, E., Mohammadzadeh Salteh, H., Aghdam Mazraeh, Y., Nonahal Nahr, A. (2021). Developing a Model for Improving Tax Auditing Quality in Iran. Iranian Journal of Accounting, Auditing and Finance, 5(4), 101-118. doi: 10.22067/ijaaf.2021.41381
URL: https://ijaaf.um.ac.ir/article_41381.html

Iranian Journal of
Accounting, Auditing & Finance

Ferdowsi University of Mashhad

Received: 2021-09-27
Accepted after revision: 2021-11-28
Published online: 2021-12-24

RESEARCH ARTICLE DOI: 10.22067/ijaaf.2021.41397

Credit Rating of Companies listed on the Tehran Stock Exchange and the Effect of Tax Avoidance Using PSO Algorithm

Hani Gharavi Ahangar, Seyed Hossein Naslemousavi, Ali Akbar Ramezani

Department of Accounting, Qaemshahr Branch, Islamic Azad University, Qaemshahr, Iran

Abstract

Credit ratings reflect the relative ability of companies to meet their financial obligations, the relative default probability, and the recovery probability if the debt is not paid. Credit rating agencies build their information analysis on financial statements, which directly affect the credit rating. Tax activities, meanwhile, may contain useful information for credit rating agencies due to their essential role in influencing corporate credit. Thus, the study aims to investigate corporate tax avoidance's effect on credit rating using the Particle Swarm Optimization (PSO) algorithm. Therefore, to achieve the research goal, 101 sample companies were collected in 9 years from 2011 to 2019. The emerging-market scoring model measured credit rating and tax avoidance using two scales of tax-book difference and effective tax rate. The Statistical test related to the results indicates relationships. It is significant between tax avoidance and credit rating.

Keywords: Credit Ranking, Tax Avoidance, PSO Algorithm

Corresponding author: Seyed Hossein Naslemousavi
Email: *nseyedhossein2@yahoo.com*

Number of Figures: 6
Number of Tables: 6
Number of References: 42
Pages: 16

RESEARCH ARTICLE

1. Introduction

Apart from bank loans, a company can be financed through capital markets. What shareholders and bondholders (creditors) pay attention to is the company's performance and risks. A credit rating is a quantified assessment of a business entity's credit based on its ability to repay debt and the probability of default. A higher credit rating is always more favourable because it greatly affects the investor's perception. A great number of investment decisions depend on this rating because investors use credit rating as a risk index and help them quickly assess the risk characteristics of a large number of securities or securities-issuing companies on a single, recognized scale. Investors prefer to invest in companies with a high investment rating (high credit rating). As a result, rankings will be the main channel for disseminating information in financial markets. Credit ranking can be interpreted as a screening technology to reduce information asymmetry problems (Grunert, Norden and Weber, 2005). Credit rating has gained increasing importance with the globalization of financial markets and credit rating in regulating financial contracts (Frost, 2007). Thus, the importance of the analysis performed by credit rating agencies is also determined by the amount of debt financing for companies. Despite the vital role of credit rating in capital markets, little is known about what information affects credit rating.

Following the corporate scandals of the early 2000s, Section 702 (b) of the Sarbanes Oxley Act of 2002 called for presenting a report on the role and performance of credit rating agencies in securities market performance. Shortly afterwards, in 2003, the U.S. Securities and Exchange Commission (SEC) stated that the market needs to fully understand the reasons for rating decisions and the type of information that rating agencies use in their analyses. Numerous studies indicate that public and private information, financial information, quality of accruals, information quality, accounting conservatism, book-tax differences, profit quality and off-balance-sheet financing can be used by rating agencies in rating analysis. (Ahmed et al., 2002; 2005; Cheng and Subramanyam, 2008; Ayers, Laplante and AcGuire, 2010; Kraft, 2015). However, there is little information on how tax avoidance affects the measurements conducted by credit rating agencies. Therefore, it is crucial to study the impact of tax avoidance on credit rating for several reasons; First, companies rely heavily on debt relief as their primary source of financing. Similarly, executive managers consider credit rating one of their most important concerns when deciding on capital structure (Graham and Harvey, 2001).

Credit ratings bring about significant consequences for companies because credit ratings are often used in financial contracts. In a similar vein, they analyse factors that affect credit rating yields insight into the undeniable economic consequences for companies, investors, executives, and others. Second, it is not clear whether tax avoidance affects credit rating. On the other hand, tax avoidance is a widely debated topic today. Tax avoidance is considered legal behaviour; commercial entities attempt to reduce their tax debts by finding passways in tax law and reviewing their own economic decisions. These strategies will benefit the company. However, there may be indirect economic consequences, such as reduced credit rating, which affects the cost of stocks and capital. Although low-income tax can positively affect dividends in the short term, overdue tax debt may have negative effects in the long run. In general terms, low tax rates are very attractive to investors; however, there is a connection between tax avoidance and credit rating.

Tax avoidance is a type of official abuse of tax laws performed by finding leeways to pay tax or attempting to find legal ways to reduce the amount of payable tax. Tax avoidance strategies are recognized as techniques to prevent the transmission of cash flows from shareholders to the government, a procedure that raises the company's value (Alizadeh, 2015). Companies use tax avoidance strategies (McClure, Lanis and Govendir, 2016) to reduce tax liability, increase earnings

RESEARCH ARTICLE

per share, reduce effective tax rates, increase cash flow, lower prices for final products, and have a better position in the competitive market. Tax avoidance strategies can lead to additional costs for the company (Rao and Yu, 2013). On the other hand, real results can be indirect in the long run, such as weakening market position, increasing stock costs, reducing stock prices, changing capital structure, future earnings changes (Jackson, 2015) and credit rating changes (Ayers, Laplante and AcGuire, 2010). In general, tax avoidance has potential consequences for managers, shareholders, creditors, and the government (Hanlon and Heitzman, 2010).

Therefore, the businesses' managers should not make decisions that might jeopardize future financing or growth opportunities. Failure to pay attention to this subject in financing decisions will create a risky situation for the business; because if the business cannot provide the necessary resources from the financial market in the time of need, it will be forced to ignore the appropriate investment opportunities (Mahmoudabadi and Ghayouri Moghadam, 2011). Thus, businesses are generally concerned about their credit situation in two ways: first, lest they be unable to pay their principal and interest on their debts and face a financial crisis; second, the business current credit decisions should not jeopardize its future financial flexibility. The debate on credit rating is essential for businesses and other stakeholders, including current creditors and investors. Further, potential creditors and investors will not be unaware of the credit status of businesses. Given this, it is vital to have appropriate and concise information that describes the creditworthiness of businesses. Such information can be extracted through credit rating.

Given the importance of companies' risk awareness, it is necessary to identify the factors that increase the company's risk and thus reduce the credit rating. According to the above view, in the present study, an attempt has been made to investigate the above factors using a non-linear method that rely on meta-heuristic population-based algorithms because non-linear methods have shown better performance than linear methods in previous studies. Moreover, due to the complexity of real-world problems, the need for precise methods which are both time and cost-effective has increased over time. Therefore, the present study is the first enquiry that seeks to use meta-heuristic population-based algorithms to measure the significant relationships between credit rating and tax avoidance.

2. Theoretical Principles of the Study

Previous research literature shows that tax avoidance carries significant risks (Hasan et al., 2014). These risks are difficult to interpret due to transactions and tax disclosures (Donahoe and Knechel, 2014). Differences in users' access to financial statement information and the complexity of analytical methods can greatly affect how credit rating agencies evaluate tax strategies. Credit rating agencies base their credit rating approach on the quality of corporate financial reporting. Poor quality of profits and less transparency of financial statements can be a sign of declining corporate credit rating. Credit rating agencies receive important information (from potential bond issuers): key transactions, multi-year forecasts including sales and capital budgets, and specific information about product lines or new product markets. Rating agency analysts are strongly encouraged to ask for additional information about complex or ambiguous transactions during credit rating. Tax transactions are significant examples because of their important role in influencing corporate credit (Ganguin and Bilardello, 2005). However, even if rating agencies obtain more accurate information about corporate tax avoidance activities, there is still disagreement about the risk of tax strategies. This is because tax avoidance often involves a wide range of outcomes that are likely to require considerable judgment. Therefore, unclear tax strategies can disrupt the ranking process to some

extent. But because credit rating agencies deal with complex information, understanding tax strategies should not be difficult (Bonsall, Koharki and Watson, 2017). Credit rating agencies play a key role in debt markets. In a survey conducted by Graham and Harvey (2001), CFOs state that credit rating is the second most important determinant of corporate debt policy. Credit rating is important for borrowers because the borrowers' credit rating often determines debt agreements and, most importantly, interest rates.

Formigoni, Antunes and paulo (2009) and Martinez and Passamani (2014) provide evidence that the unusual tax-book difference represents profit quality, as it indicates that managers are trying to increase accounting profits and reduce taxes. Thus, analysts of rating agencies can interpret tax avoidance as a sign of declining profit quality, thus creating a risk factor for the company's bankruptcy and forcing them to lower their credit rating (Ayers, Laplante and AcGuire, 2010).

Organizations use various methods in determining a credit rating. Some focus only on quantitative data, while others consider qualitative information obtained through meetings with corporate or government representatives (Standard & and Poor's, 2011). The earliest studies to use quantitative data from accounting reports date back to the 1960s (Lopes Miiller and Lopo Martinez, 2016). Since then, many research articles have examined the use of accounting information by credit ranking agencies and have analyzed various accounting criteria such as interest payment capacity (interest coverage), asset financing percentage, profitability, and firm size. Ranking organizations use all of these metrics in their analysis (Ayers, Laplante and AcGuire, 2010).

According to Ahmed et al. (2002), credit rating is positively associated with accounting conservatism; for example, more conservative companies earn higher credit ratings. In addition, Francis, Khurana and Preira (2005) showed that credit rating is positively associated with the quality of accruals. In this sense, tax avoidance represents the profit quality that users of accounting information can interpret as a risk factor in estimating corporate debt solvency and making it a variable that potentially affects credit rating. According to Weber (2005), the market tends to minimize the risks of high tax avoidance. However, little is known about how tax avoidance affects credit rating. Clarifying these issues is important given the growing number of large corporations operating in a variety of foreign countries while also having access to global credit markets (Blouin, Krull and Robinson, 2014).

On the other hand, there are several reasons why tax avoidance is expected to influence a company's credit rating. First, tax avoidance increases the current period and post-tax cash flows, thereby reducing the risk of default. But the uncertainty increases future cash flows and affects the liquidity leverage of the company. Second, high tax avoidance may represent agency risk between management and the company's shareholders. Recent research argues that tax avoidance activities can facilitate managerial opportunism (Desai, Foley and Hines, 2003; Dhaliwal et al., 2011). Although credit rating agencies do not provide a comprehensive description of the data they review in assessing the quality of financial statements, they all state that poor data quality leads to decreased credit rating, and previous studies show that ranking agencies take risks in ranking processes (Akins, 2018; Bensall and Miller, 2017). Therefore, the present study seeks to answer this question:

Can the credit rating of companies listed on the Tehran Stock Exchange explain the inherent risks and uncertainties in companies' tax avoidance?

2.1. Literature Review

Alkhawaldeh et al. (2021) examined the effect of corporate governance on the credit rating of companies. Experimental results showed that control variables (capital structure, firm size and

competitive advantage of firms) determine the credit rating.

Ma, Stice and Wang (2020) examined whether credit rating agencies pay attention to international tax planning strategy when determining credit rating? They found that credit rating analysts consider tax avoidance information when analyzing a company's credit risk and that high tax avoidance is associated with lower credit ratings.

Fadah et al. (2020) analyzed financial and non-financial factors affecting credit rating. The results of their study indicated that the variables of profitability and liquidity have a positive effect on credit rating, while the variables of growth and financial leverage do not affect credit rating.

Mamila et al. (2019) examined the economic factors influencing the credit rating of Indian companies. Their analyses showed that economic factors influence credit rating both linearly and nonlinearly. Economic factors such as GDP, industrial production and exchange rates have a linear relationship with credit rating, while crude oil prices and inflation exert a non-linear effect on credit rating.

Rafaty et al. (2018) analyzed the effect of credit rating on company performance and stock returns. The results showed that credit rating is predicted by important factors such as company size and growth opportunities, capital intensity, return on assets, etc. The results also showed that companies with higher credit ratings performed better.

Bensal et al. (2017) examined tax avoidance disclosure. They found that a decrease (increase) in tax avoidance or ambiguity of tax disclosure was associated with a positive (negative) credit rating. This showed that companies could increase or decrease the disagreement among rating agencies after issuing bonds.

Tarigan and Fitriany (2017) examined the effect of corporate governance on credit rating. The results of their study showed that increased number of the board of members, institutional ownership, audit committee and the size of the independent auditor has a positive effect on the credit rating of companies, while the independent ratio of the number of managers and the size of shareholders has a negative effect. This study showed that the number of managers has an inverse relationship with the credit rating. To a certain extent, the more managers there are, the higher the credit rating will be because the more effective the monitoring and decision-making will be. However, when they reach the desired point (five individuals), additional managers reduce their credit rating due to coordination problems.

Lopez Miller and Lopo Martinez (2016) examined the Brazilian market's tax-book differences, profit management, and credit rating. Their study showed that tax avoidance does not determine the credit rating of the Brazilian market; furthermore, as profit management increases, rating decreases, while companies involved in aggressive tax planning are not penalized.

Ayers, Laplante and AcGuire (2010) examined the relationships between credit rating and the tax-book differences. The results show a significant negative relationship between positive changes in tax-book differences and changes in credit rating. This evidence is consistent with positive tax-book difference changes indicating declining profits or increased external financing. Negative changes in the tax-book difference also lead to adverse changes in the credit rating, reducing profit quality.

Ahmadvand, Rezaei and Tamliki (2017) conducted a study entitled "Identifying and Explaining the Factors Determining the Credit Rating: A Case Study on Tehran Stock Exchange." The results of their studies showed that the variables of financial leverage and profitability at the level of 99% confidence, the variables of growth and government ownership at the level of 95% and the variable of financial coverage at the level of 90% are statistically significant and can be used as factors and

they can be introduced as factors determining the credit rating of companies listed on the Tehran Stock Exchange.

Jafari and Ahmadvand (2015) examined the credit rating of companies listed on the Tehran Stock Exchange using the emerging market credit scoring approach. The results showed that some of the selected companies are in the area of financial doubt or distress, and this issue can attract the attention of investors and creditors.

2.2. Research Hypothesis

There is a significant relationship between tax avoidance and credit rating.

3. Research Methodology

In order to conduct the study at hand, the required data have been extracted from the audited financial statements of companies listed on the Tehran Stock Exchange, Codal website and the official website of the Stock Exchange. In order to determine the statistical sample of the research, the following restrictions were applied in selecting the companies: 1- their financial period ends at the end of March each year. 2- their fiscal year does not change during the studied periods. 3- the shares of the company have been traded for at least six months of the year. 4- they shall be among investment, intermediation and financial companies. 5- the information required to conduct this research should be available in the period under review. Finally, the financial information of 90 companies was analyzed as a sample in a period of 9 years from 2011 to 2019 by applying the above limitations.

3.1. Research Procedure

Experimental modelling and Research Methods

Theoretically, the linear regression model of the research hypothesis is described as follows:

Relation (1)

$$CR_{it} = \beta_0 + \beta_1 \sum BTD_{it} + \varepsilon_{it}$$
$$CR_{it} = \beta_0 + \beta_1 \sum ETR_{it} + \varepsilon_{it}$$

Equation (1) is an econometric regression pattern of panel data. In the panel data, despite the robustness of these patterns, it is not possible to estimate such a pattern of flexibility due to the limited degree of freedom of the pattern. With this description, patterns (1) and (2) can be presented as a non-linear pattern:

$$CR_{it} = \sum_{j=0}^{J} (\beta_{jit}) BTD_{it} + \varepsilon_{it} \quad (1)$$
$$CR_{it} = \sum_{j=0}^{J} (\beta_{jit}) ETR_{it} + \varepsilon_{it} \quad (2)$$

In this model, the coefficient β is calculated as the number of companies and independent variables in this model. The above pattern is linear, but since 0βs can be freely estimated for any section (i) and even for any period (t), the above pattern is non-linear. Since the purpose of this study is not to examine the temporal effects of independent variables on dependent ones, the coefficients are estimated only for independent variables and companies. In econometric literature, 0βs are often estimated using the least-squares optimization method of error terms (residual in the sample). Therefore, Particle Swarm Optimization (PSO) is used in this study. The group flight of birds inspires the particle swarm algorithm. Each bird or particle in the group follows a very simple behaviour, repeating and imitating the successful experience of neighbouring birds. The objective

function here is the same as the linear pattern of the sum of squares of error (residual in the sample) which must be minimized; In other words, the goal is:

$$Min:\ pso\ Cost\ Function = \sum_{i=1}^{n}\sum_{t=1}^{T}\varepsilon_{it}^{2}$$

In fact, instead of using least-squares optimization in the linear model, the present study uses a particle swarm optimization algorithm to estimate the effect of each independent variable on the dependent variable. Each particle represents a credit rating index in companies operating on the Tehran Stock Exchange in this study.

Table 1. PSO algorithm parameters

Particle population	nPop=909;	% Population Size (Swarm Size)
Maximum repetition		MaxIt=2000
Personal learning factor	c1=2;	% Personal Learning Coefficient
Collective learning coefficient	c2=2.0;	% Global Learning Coefficient
Inertia weight	wdamp=0.99;	% Inertia Weight Damping Ratio
Initial particle velocity		Zero
Duplication function		Repmat

3.2. Research Variables

3.2.1. Independent Variables - Tax Avoidance

In order to measure the variables of tax avoidance, two measures were used according to the studies conducted by Chen and Zolotoy (2014), Crabtree and Kubik (2014) and Arab Salehi and Hashemi (2015):

The first measure of tax avoidance (BTD): The tax-book difference is obtained through the difference between accounting profit (pre-tax profit) and corporate taxable profit, which is also calculated by dividing the tax cost by the legal tax rate. In order to homogenize, this variable was divided by the book value of the total assets.

The second measure of tax avoidance (ETR): is the effective tax rate, which is calculated as follows:

$$\mathrm{ETR_{it}} = \frac{\mathrm{TTE_{it}}}{\mathrm{PTE_{it}}}$$

ETR: effective tax rate of the company i in company t.

TTE: Total tax cost of the company i in company t.

PTE: pre-tax profit i in company t.

Since the lower the effective tax rate of a company, the higher the tax avoidance, the calculated tax rates were multiplied by a negative number of one (1-) (Safari Grayli and Pudineh, 2016). Since two measures were used for the tax avoidance variable, the research hypothesis has been performed for each of these two criteria.

3.2.2. Dependent Variable - Credit Rating

To determine the credit rating, a four-stage model called the emerging market scoring model has been used in the following order (Jafari and Ahmadvand, 2015):

stage 1: Determining the equivalent of the credit ratings of American companies

First, using the emerging market scoring model (Equation 1), the scores of the companies in the emerging market was calculated; These scores were then compared with the values in Table 2 to obtain their equivalent credit ratings. As mentioned, the cornerstone of the Emerging Market

RESEARCH ARTICLE

Scoring approach is the ″Z" rating model, which is used in the process of analyzing the credit quality of a variety of companies, including public, private, manufacturing, non-manufacturing, American and non-American companies. Emerging market scores were obtained using the following model (Altman and Hotchkiss, 2005):

$EMS = 3.25+6.56X_1+3.26X_2+6.72X_3+1.05X_4$ Equation (1)

X1: Ratio of working capital to total assets / X2: Ratio of accumulated profit to total assets

X3: Ratio of profit before interest and tax to total assets / X4: Ratio of the total book value of equity to book value of total liabilities

Table 2. "Z" rating and equivalent credit ratings

equivalent credit rating	"Z" rating		equivalent credit rating	"Z" rating	
AAA	≥ 8.15		B-	3.75-4.15	
AA+	7.60-8.15		CCC+	3.20-3.75	
AA	7.30-7.60		CCC	2.50-3.20	Financial
AA-	7.00-7.30		CCC-	1.75-2.5	distress
A+	6.85-7.00		D	≤ 1.75	area
A	6.65-6.85		BBB-	5.65-5.85	
A-	6.40-6.65	Financial	BB+	5.25-5.65	
BBB+	6.25-6.40	health area	BB	4.95-5.25	
BBB	5.85-6.25		BB-	4.75-4.95	
B+	4.50-4.75				doubt
B	4.15-4.50				area

Step 2: Moderating the equivalent credit rating, based on the company's vulnerability to exchange rate fluctuations

At this step, the equivalent credit rating determined in the previous step is moderated based on the company's vulnerability to exchange rate fluctuations and the difficulty in repaying foreign currency debts. Currency liabilities are measured at interest expense on foreign currency liabilities and foreign exchange earnings on foreign currency liabilities. Finally, the amount of liquidity available is compared to the amount of short-term debt that will mature next year. If the company in question is weak and highly vulnerable, that is, if it has no foreign exchange earnings, or the ratio of foreign exchange earnings to foreign exchange liabilities is very low, or a significant amount of foreign currency debts close to maturity and has little liquidity, in this case, the equivalent credit rating (determined in the first step) will be reduced by three degrees; for example: from BB + to B +.

If the company's vulnerability is neutral, a one-point decrease in the equivalent credit rating occurs (for example, from BB + to BB), and if the risk of value reduction due to exchange rate fluctuations is negligible for the company, a change occurs. It is not created in the equivalent credit rating. To moderate this step, according to Jafari and Ahmadvand (2015), the effect of exchange rate changes on the financing activity in the case of cash flow and also the amount of liquidity in comparison with its current liabilities has been used.

Stage 3: Moderating the equivalent credit rating based on the industry

In the third stage, the equivalent rating determined in the first stage is compared with the credit industry security rating (Table 3); for a difference of one to three degrees between the two ranks, the equivalent credit rating calculated in the second stage changes by one degree. For example, if the credit rating obtained from the first stage is BBB and the industry rating is BB +, BBB- or BB, then the equivalent credit rating calculated in the second stage is negatively moderated by one degree. If the difference between the equivalent rating determined in the first stage and the equivalent value of the relevant industry credit security rating is more than three and less than six

degrees, a two-point moderation in the credit rating equivalent to the second stage occurs. If there is a difference of six degrees or more, the equivalent credit rating calculated in the second stage is moderated by three degrees (positive or negative). Thus, the industrial environment of the emerging country under study is considered in analysing the company's credit quality.

Table 3. Industry average credit rating

Industry	Average credit rating	Industry	Average credit rating
Telecommunications	A+	Energy	A-
Investments	A+	Paper products	BBB
Oil and gas extraction	A+	Insurance and pension	BBB
Electrical devices	A+	Computer	BBB
Transportation	A+	Communication vehicles	BB+
Foodstuffs	A	Auto Parts	BB+
Sugar	A	Textiles	BB+
Pharmaceutical products	A	Hotel and restaurant	BB
Banks	A-	Mass production	BB
Multidisciplinary industry	A-	Cement	BB
Leasing	A-	Metal ores	BB
Car	A-	Non-metallic ores	BB
Chemical products	A-	Ceramic Tile	BB
Oil products	A-	Basic metals	B+

Stage 4: Moderating the equivalent credit rating based on competitiveness

At this stage, attention is paid to the company's competitiveness; depending on whether the company is dominant and possesses internal power in its industry in terms of size, political influence and management quality, its rating stage changes one degree. In addition, the company's competitiveness may be neutral, in which case there will be no change in its credit rating. In this study, Jafari and Ahmadvand (2015) have been followed to examine the competitiveness of the company in the industry, the company's market share (ratio of company sales to total industry sales per year). Finally, credit ratings are reported by categories (i.e., AA, AAA, etc.). Since these rates are discrete sequential variables, they can be considered the result of a continuous scale called "debt repayment ability". A number of researchers have converted credit ratings into numerical values in order to use information in ranking regressions. By doing so, a discrete sequential variable is obtained. Converting credit ratings to numerical values balances the ratings published by various institutions. In some previous studies, scores assigned to credit ratings have been placed in seven categories (Murcia et al., 2014). The same classification has been used (Ahmadvand, Rezaei and Tamliki; 2017) (Vazifeh Doost et al., 2016).

Table 4. Scores assigned to credit ratings

Scores	Credit rating		Scores	Credit rating	
۷	AAA	Good investment level (financial health area)	3	BB+	Low level of investment (doubtful area)
۶	AA+		3	BB	
۶	AA		3	BB-	
۶	AA-		2	B+	
۵	A+		2	B	
۵	A		2	B-	
۵	A-		1	CCC+	Merchant level (financial distress zone)
۴	BBB+		1	CCC	
۴	BBB		1	CCC-	
۴	BBB-		1	D	

(Adapted from, Ashbaug-skaife, Collins and Lafond, 2006)

4. Research Findings

Table 5 provides descriptive statistics of the companies in the sample. The tax avoidance variable (tax-book difference) with a value of 0.280 shows that the average accounting profit of companies is more than their taxable profit and the minimum difference between accounting profit and taxable profit indicates -2.237 indicates that in some companies, accounting profit is less than taxable profit. The tax avoidance variable (effective tax rate) of -0.216 indicates that some companies do not pay taxes even though they report profits. According to the calculated average for the credit rating of 2.364, it can be concluded that the average credit rating of companies is in the second category (B +, B, B-). In other words, on average, companies are in the area of financial doubt.

Table 5. Descriptive statistics of research variables

Variable	symbol	average	Standard deviation	kurtosis	skewness	max	min
Credit rank	6	1	0.714	1.974	0.618	2.364	CR
Tax avoidance (tax book difference)	8.909	-2.237	1.745	8.337	0.169	0.280	BTD
Tax avoidance (effective tax rate)	0.865	-5.693	-1.847	8.740	0.659	-0.216	ETR

Number of visits: 909

Results of Particle Swam Optimization (PSO)

In this study, the least-squares optimization of error terms (residues in the sample) based on the particle swamp algorithm is used to estimate the effect of each independent variable on the dependent variable. The following results were obtained by implementing the particle swamp algorithm. The results obtained by presenting the algorithm after the number of repetitions of 2000 generations caused the appropriate convergence. Diagrams (1), (2) and (3) display the path travelled by the evaluation function to reach the optimal point by particle swamp algorithm. As the number of repetitions increases, the amount of error decreases, but in the final repetitions, almost no improvement is achieved, and there is so-called overfitting in these areas. In Figure (2), the line drawn by the width regression pattern is obtained from the origin 0β and the slope of line 1β. This line is the best line that can minimize the remaining errors. As shown in Figure (3), the optimization has been done optimally.

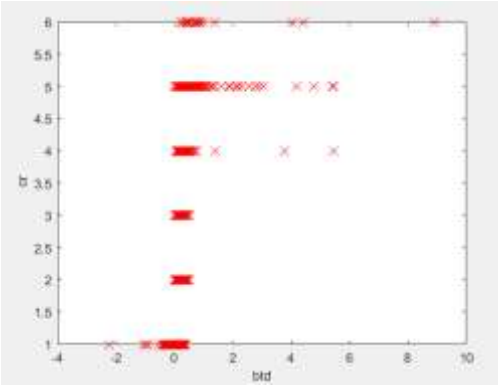


Figure 1. Results of the data values of the pattern (1)

RESEARCH ARTICLE

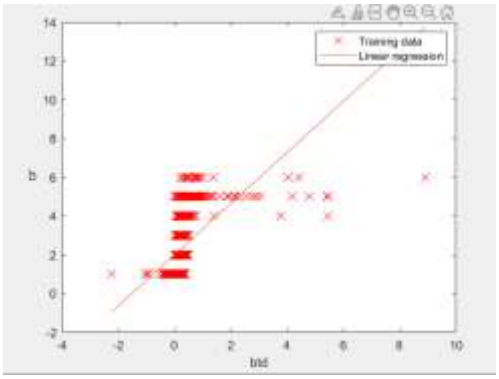
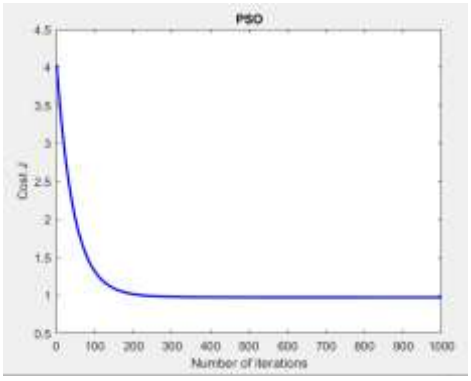


Figure 2. The process of learning data values with PSO algorithm based on the width of the origin and the slope of the pattern line (1)



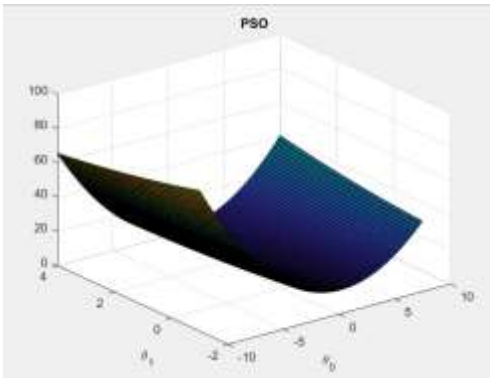


Figure 3. Results of credit rating convergence level based on the tax-book difference (Model 1)

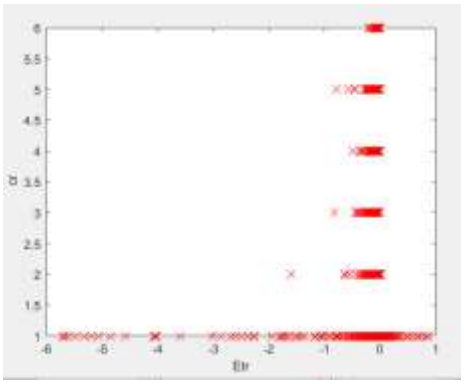


Figure 4. Results of the data values of the pattern (2)

Evaluation Criteria

In order to evaluate the accuracy and precision of the prediction, the indices of the coefficient of explanation (R2) and the square root mean square error (RMSE) have been used. The low value of RMSE and the high coefficient of R2 indicate the acceptable accuracy of the model and its superiority over other models. The ability to predict that pattern is better according to that criterion. The (RMSE) and (R2) values are described in Table 6 for the mentioned patterns. The research hypothesis dealt with the effect of tax avoidance on credit rating by taking into consideration the ability of the particle swamp optimization algorithm to predict the credit rating of companies listed on the Tehran Stock Exchange. Given that the results obtained from the performance test of models

show that model (1) with 76% accuracy and model (2) with 81% accuracy predicts the credit rating of companies, the research hypothesis is thus confirmed. It can be concluded that tax avoidance (tax-book difference and effective tax rate) has a significant effect on the credit rating of companies listed on the Tehran Stock Exchange, and also the use of particle swamp optimization algorithm possesses an acceptable accuracy for predicting credit rating.

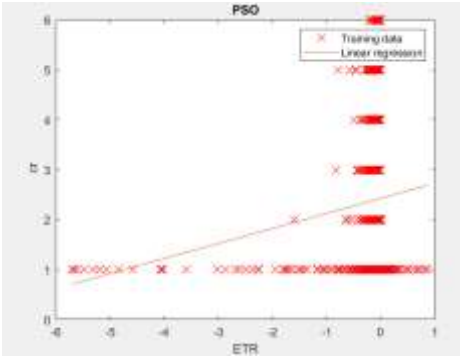
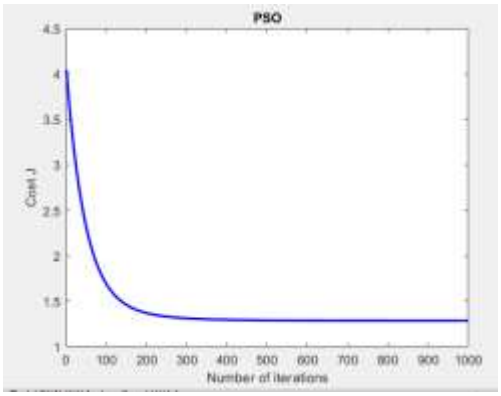


Figure 5. The process of learning data values with PSO algorithm based on the width of the origin and the slope of the pattern line (2)



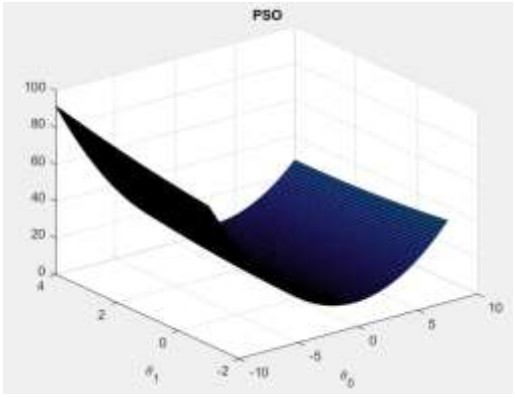


Figure 6. Results of credit rating convergence level based on an effective tax rate (Model 2)

Table 6. Statistical parameters studied by PSO algorithm based on the effect of tax avoidance

Title	R^2	RMSE
Tax book difference (pattern 1)	0.765	0.313
Effective tax rate (pattern 2)	0.806	0.614

5. Conclusions and Suggestions

Credit rating agencies play a key role in debt markets. Credit ratings are crucial for borrowers because the borrower's credit rating often determines debt agreements and, most importantly, interest rates. Despite the inherent importance of the credit rating process, little is known about the specific information used by credit analysts in providing credit ratings. Given the importance of this issue, the present study sought to provide credit ratings of companies listed on the Tehran Stock Exchange and analyze the impact of tax avoidance on it by using the particle swamp algorithm between 101 companies listed on the Tehran Stock Exchange during the years 2011 to 2019. Specifically, this study addressed the issue of whether changes in tax-book differences are related to credit ratings. According to the statistical analysis results, tax avoidance (the difference between accounting profit and taxable profit) has a significant effect on credit rating. The tax-book

difference seems to provide useful information for credit rating agencies for two reasons; First, with tax-book differences, credit rating agencies may interpret this divergence as a sign of declining profit quality. Second, off-balance-sheet financing is one of the positive sources of the tax-book difference (i.e., accounting profit is higher than taxable profit), which can yield useful information for credit rating agencies. The results of the present study are in line with the results of Ma, Stice and Wang (2020), Aires et al. (2010) and opposite with the result of Lopez Miller and Lopo Martinez (2016).

Credit ratings are affected by effective tax rates. Corporate tax disclosure appears to play an important role in the ranking process, and rating agencies are likely to respond to changes in tax disclosure transparency. A reduction in the effective tax rate indicates a high level of tax avoidance. By reducing the effective tax rate, the net profit after tax increases in the current period and thus reduces the risk of default, quality and transparency of financial statements. But the uncertainty increases future cash flows and affects the leverage and liquidity of the company. On the other hand, this rate provides relevant information and a summary of the cumulative effects of various tax exemptions and changes in corporate tax rates. Therefore, changing the effective tax rate can lead to a review of the ratings set by the rating agencies. The results of this study are consistent with the results of Bensal et al. (2017).

According to the research results regarding the impact of tax avoidance on credit rating, it is suggested that rating agencies apply the effect of tax-book differences and effective tax rates in their rankings. Managers are advised to pay attention to the possible effects of tax avoidance to avoid financing problems and reduce investor confidence in the reported financial information, thereby reducing their credit risk. Credit ratings can reflect the potential impact of expected future events and help predict and review future results. Therefore, credit rating is one of the most reliable tools for investors to decide and buy bonds. Potential shareholders are also advised always to consider credit rating to reduce the negative effects of tax avoidance in their decisions when choosing their portfolios.

References

1. Ahmadvand, M., Rezaei, Sh. and Tamliki, H. (2017). Identifying and explaining the factors that determine credit rating. Monthly of Applied Studies in Management and Development Sciences, No. 1, pp. 154-135. (In Persian).
2. Alkhawaldeh, A. A., Jaber, J. J., Boughaci, D., & Ismail, N. (2021). A novel investigation of the influence of corporate governance on firms' credit ratings. Plos one, 16(5), e0250242. https://doi.org/10.1371/journal.pone.0250242
3. Ahmed, A. S., Billings, B. K., Morton, R. M., and Stanford-Harris, M. (2002). The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing debt costs. The Accounting Review, 77(4), pp. 867-890. https://doi.org/10.2308/accr.2002.77.4.867
4. Akins, B. (2018). Financial reporting quality and uncertainty about credit risk among ratings agencies. The Accounting Review, 93(4), pp. 1-22. https://doi.org/10.2308/accr-51944
5. Alizadeh, A., Khadem Khanjari, S., Amini, M. A. and Rasaeian, A. (2015). Stock liquidity and tax avoidance given the importance of corporate governance and financial constraints. Accounting and Auditing Reviews, 22(4), pp. 478-461. https://www.sid.ir/En/Journal/ViewPaper.aspx?ID=515345
6. Altman, E., and Hotchkiss, E. (2005). Corporate Financial Distress and Bankruptcy: Predict

and Avoid Bankruptcy, Analyze and Invest in Distressed Debt. New York: John Wiley and Sons. https://doi.org/10.1002/9781118267806

7. Arab Salehi, Mehdi; Hashemi, Majid (2015). The effect of managerial overconfidence on tax avoidance. Accounting and auditing reviews. 22(1), pp. 85-104. https://doi.org/10.22059/acctgrev.2015.53669
8. Ashbaugh-Skaife, H., Collins, D. W., and LaFond, R. (2006). The effects of corporate governance on firms' credit ratings. Journal of accounting and economics, 42(1-2), pp. 203-243. https://doi.org/10.1016/j.jacceco.2006.02.003.
9. Ayers, B. C., Laplante, S. K., and McGuire, S. T. (2010). Credit ratings and taxes: The effect of book–tax differences on ratings changes. Contemporary Accounting Research, 27(2), pp. 359-402. https://doi.org/10.1111/j.1911-3846.2010.01011.x
10. Blouin, J. L., Krull, L. K. and Robinson, L. A., (2014). The location, composition, and investment implications of permanently reinvested earnings. Working paper. http://dx.doi.org/10.2139/ssrn.2154662
11. Bonsall IV, S. B., Koharki, K. and Watson, L. (2017). Deciphering tax avoidance: Evidence from credit rating disagreements. Contemporary Accounting Research, 34(2), pp. 818-848. https://doi.org/10.1111/1911-3846.12287
12. Chen, Y. and Zolotoy, L. (2014). Stock Liquidity and Corporate Tax-Avoidance: The Tale of Two Tails. Available at: https://www.uts.edu.au/sites/default/files/ACCconf14LZolotoy.pdf
13. Cheng, M. and Subramanyam, K.R. (2008). Analyst following and credit ratings. Contemporary Accounting Research, 25(4), pp. 1007-1044. https://doi.org/10.1506/car.25.4.3
14. Crabtree, A. D. and Kubick, T. R. (2014). Corporate tax avoidance and the timeliness of annual earnings announcements. Review of Quantitative Finance and Accounting, 42(1), pp. 51-67. https://doi.org/10.1007/s11156-012-0333-9
15. Desai, M. A., Foley, C. F. and Hines, J. R., (2003). Dividend policy inside the multinational firm, in: EFA 2002 Berlin Meetings Presented Paper. Available at http://dx.doi.org/10.2139/ssrn.317040
16. Dhaliwal, D. S., Huang, S. X., Moser, W. J., & Pereira, R. (2011). Corporate tax avoidance and the level and valuation of firm cash holdings. In 2011 American Accounting Association Annual Meeting-Tax Concurrent Sessions Available at SSRN: https://ssrn.com/abstract=1905076
17. Donahoe, M. and Knechel, W. R. (2014). Does corporate tax aggressiveness influence audit pricing? Contemporary Accounting Research , 31 (1), pp. 284-308. https://doi.org/10.1111/1911-3846.12027
18. Fadah, I., Ayuningtyas, A., Puspitasari, N. and Yuswanto, I. B. (2020, May). Analysis of financial and non-financial factors affecting bond ratings. In IOP Conference Series: Earth and Environmental Science, 485(1), pp. 012019. https://doi.org/10.1088/1755-1315/485/1/012019
19. Formigoni, H., Antunes, M. T. P. and Paulo, E. (2009). Diferença entre o lucro contábil e lucro tributável: uma análise sobre o gerenciamento de resultados contábeis e gerenciamento tributário nas companhias abertas brasileiras. BBR-Brazilian Business Review, 6(1), pp. 44-61.
20. Francis, J.R., Khurana, I.K., Pereira, R. (2005). Disclosure incentives and effects on cost of capital around the world. The Accounting Review, 80(4), pp 1125-1162.

https://doi.org/10.2308/accr.2005.80.4.1125
21. Frost, C. A. (2007). Credit rating agencies in capital markets: A review of research evidence on selected criticisms of the agencies. Journal of Accounting, Auditing & Finance, 22(3), pp. 469-492. https://doi.org/10.1177/0148558X0702200306
22. Ganguin, B., & Bilardello, J. (2005). Fundamentals of corporate credit analysis. New York: McGraw-Hill. https://www.amazon.com/Standard-Fundamentals-Corporate-Credit-Analysis-ebook/dp/B00938Y862
23. Graham, J. R. and Harvey, C. R. (2001). The theory and practice of corporate finance: Evidence from the field. Journal of Financial Economics. 60(2–3). pp. 187–243. https://doi.org/10.1016/S0304-405X(01)00044-7
24. Grunert , J., Norden, L. and Weber, M. (2005). The role of non-financial factors in internal credit ratings. Journal of banking & finance. 29(2), pp. 509-531. https://doi.org/10.1016/j.jbankfin.2004.05.017
25. Hanlon, M. and Heitzman, S. (2010). A review of tax research. Journal of Accounting and Economics, 50(2-3), pp. 127-178. https://doi.org/10.1016/j.jacceco.2010.09.002
26. Hasan, I., Hoi, C. K. S., Wu, Q. and Zhang, H. (2014). Beauty is in the eye of the beholder: The effect of corporate tax avoidance on the cost of bank loans. Journal of Financial Economics, 113(1), pp. 109-130. https://doi.org/10.1016/j.jfineco.2014.03.004
27. Jackson, M. (2015). Book-Tax Differences and Future Earnings Changes. The Journal of the American Taxation Association, 37(2), pp. 49-73. https://doi.org/10.2308/atax-51164
28. Jafari, S. M. and Ahmadvand, M. (2015). The credit rating of companies listed at Tehran stock exchange using the emerging market scoring model. Economic and business bulletin of the business, 6(10), pp. 56-37. (In Persian) http://jebr.azad.ac.ir/mobile/article_526598.html?lang=en
29. Kraft, P. (2015). Rating agency adjustments to GAAP financial statements and their effect on ratings and credit spreads. The Accounting Review, 90(2), pp. 641-674. https://doi.org/10.2308/accr-50858
30. Lopes Miiller,D., Lopo Martinez,A.(2016). Book-Tax Difference, Earnings Management and Bind Ratings in The Brazilian Market. Revista Universo Contábil, ISSN 1809-333, 12(3), pp. 91-109. https://doi.org/10.4270/ruc.2016323
31. Ma,Z., Stice, D. and Wang, D.(2020). Do Credit Rating Agencies Care About Our International Tax Planning Strategy When Assigning Credit Ratings? Tax Notes Federal, 169 (6), Available to http://dx.doi.org/10.2139/ssrn.3759423
32. Mahmoud Abadi, H., Ghayouri Moghaddam, A. (2011). Credit Rating in Terms of Financial Ability to Pay the Principle and Interest on Debts, Using Data Envelopment Analysis Techniques (Case Study: Companies Listed in Tehran Stock Exchange). *Journal of Accounting Knowledge*, 2(4), 125-145. Doi: 10.22103/jak.2011.37
33. Martinez, A. L. and Passamani, R. R. (2014). Book-tax differences e sua relevância informacional no mercado de capitais no Brasil. Revista de Gestão, Finanças e Contabilidade, 4(2), pp. 20-37. Doi:10.18028/rgfc.v4i2.615.
34. McClure, R., Lanis, R., Govendir, B. (2016). Analysis of Tax Avoidance Strategies of Top Foreign Multinationals Operating in Australia: An Expose. Sydney. Australia. Available at http://cdn.getup. org.au/1507-Aggressive- Tax-Avoidance- By- Top-Foreign Multinations .pdf.
35. MurciaI, F. C. D. S., Dal-Ri Murcia, F., Rover, S. and Borba, J. A. (2014). The determinants

of credit rating: Brazilian evidence. BAR-Brazilian Administration Review, 11(2), pp. 188-209. https://doi.org/10.1590/S1807-76922014000200005

36. Rafay, A., Chen, Y., Naeem, M. and Ijaz, M. (2018). Analyzing the Impact of Credit Ratings on Firm Performance and Stock Returns: An Evidence from Taiwan. Iranian Economic Review 22(3), pp. 767-786. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3258268
37. Rao, R.P. and Yu, T.R. (2013). Corporate Tax Avoidance and Debt Policy, SSRN Electronic Journal. Available at https://doi.org/10.2139/ssm.2352646
38. Safari Graili, M., Pudineh, S. (2015). Tax avoidance and timely announcement of profits: An experimental test of the Tehran Stock Exchange. Tax Research Letter, 24(31), pp. 101-118. http://taxjournal.ir/browse.php?a_id=983&sid=1&slc_lang=en
39. Standard and Poor's Corporate Rating Criteria. (2006). http://www. corporatecriteria. standardandpoors.com.
40. Tarigan, C. K. and Fitriany, F. (2017). Impact of corporate governance on credit rating. In The 6th International Accounting Conference (IAC 2017). Atlantis Press https://doi. org/10.2991/iac-17.2018.
41. Vazifeh Doost, H., Ahmadvand, M. and Sadevand, M. J. (2016). Test of the effect of corporate governance factors on credit rating in the form of emerging market score model (Case study: Tehran Stock Exchange). Financial Knowledge of Securities Analysis, 9(30), pp. 95-113. (In Persian). https://jfksa.srbiau.ac.ir/article_9199.html?lang=en
42. Weber, D.P. (2005). Book-tax differences, analysts' forecast errors, and stock returns. Thesis. The University of Colorado at Boulder. The USA. http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.476.1231

How to cite this article:
Gharavi Ahangar, H., Naslemousavi, S., Ramezani, A. (2021). Credit Rating of Companies listed on the Tehran Stock Exchange and the Effect of Tax Avoidance Using PSO Algorithm. Iranian Journal of Accounting, Auditing and Finance, 5(4), 119-134. doi: 10.22067/ijaaf.2021.41397
URL: https://ijaaf.um.ac.ir/article_41397.html

RESEARCH ARTICLE

Ferdowsi University of Mashhad Press (FUMP)

IJAAF

IRANIAN JOURNAL OF
ACCOUNTING, AUDITING and FINANNCE

Volume 5, Issue 4, Autumn 2021

ISSN-Print: 2588-6142
ISSN-Online: 2717-4131

Serial Number: 17

Publisher:
Ferdowsi University of Mashhad