Oradea Journal of Business and Economics

Volume 7/2022, Issue 2

This page intentionally left blank.

Acknowledgement

This page intentionally left blank.

Contents

THE IMPACT OF SPECIFIC WORK EXPERIENCE OF JAPANESE SME EMPLOYEES ON ENTREPRENEURIAL INTENTION

Takeshi Nakayama[*]
Faculty of Business, Kyoritsu Women's University, Tokyo, Japan
nakayama888@gmail

Abstract: *Although entrepreneurial activity is an engine for stimulating innovation and economic growth, its growth rate in Japan has been declining since 1980 and is at an internationally low level. While policies to increase the growth rate must be strengthened, as the first step, increasing the number of entrepreneurs will require increasing the number of people interested in starting a business. Thus, it is necessary to identify the factors that promote entrepreneurial intention to increase the number of entrepreneurs. The theory of planned behaviour (TPB) is well-known for identifying factors that determine entrepreneurial intention regarding human psychology and attitude. However, it is also considered that there are other factors (experience and knowledge) from the aspect of work and practice. We focus on employees in their 20s and 30s working in small and medium-sized companies that have produced many entrepreneurs, and measure the degree of knowledge influence about entrepreneurship and practical experiences such as new product planning, job change, side job, and sales on entrepreneurial intention. Multiple regression analysis using a questionnaire (self-administered), which is based on hypotheses drawn from previous research, reveals that, among the six factors, entrepreneurial education and experience in new product planning, experience in selling products, and side job experience were the most important factors in influencing entrepreneurial intentions.*

Keywords: entrepreneurial intention, work experience, SME, office worker, Japanese company.

JEL Classification: M0, M1, M50, M13.

1. Introduction

Japan's business start-up rate was high in the 1960s and 1970s but has continued to decline over the long term since 1980; it has remained stagnant since 2001, at around 4~5% (SMEA, 2017). In the United Kingdom (UK), United States (US), and France, the rate exceeded 9% and compared to these countries, Japan has a low rate of business start-up, at about less than half of the other countries' (SMEA, 2018). Therefore, for more than 20 years, the Japanese government has identified increasing the rate of business start-ups as one of its economic policy challenges. This is because active entrepreneurial activity induces employment growth and innovation and contributes positively to a country's economic development (Van Stel et al., 2005; Acs et al., 2008; Naude, 2008).

Since 1997, the number of would-be entrepreneurs (the number of people interested in starting their own business) has also been declining. There were 2.81 million would-be entrepreneurs in 1997, and 1.52 million in 2012, representing a 46% decline over 15 years (SMEA, 2017). One factor identified as contributing to this decline in the number of entrepreneurs and would-be entrepreneurs is the high level of indifference to

---

entrepreneurship among the population. International comparative data indicate that the percentage of people in Japan who are indifferent to entrepreneurship (77.3%) is more than twice as high as in the US (22.9%), the UK (36.0%), Germany (30.6%), and France (39.2%) (SMEA, 2017).

Therefore, to increase the number of entrepreneurs, it is important to increase the number of people interested in entrepreneurship. However, to achieve this goal, it is necessary to identify the factors that make people want to start a business. The theory of planned behaviour (TPB) model (Ajzen, 1985), which explains entrepreneurial intention using three variables, was developed to answer this question. This model uses psychological factors as explanatory variables and has been used intensively in previous research with university students as the research subject. On the other hand, in Japan, it is rare for a person to start a business immediately after graduating from university. Instead, most start a business after working for a company. Therefore, it is assumed that in addition to psychological factors, practical knowledge acquired on the job profoundly influences interest in entrepreneurship. Fatoki (2014) found that university students with work experience have higher entrepreneurial intentions than those without. This indicates that work experience is a factor that positively influences entrepreneurial intention. However, most previous studies that dealt with the relationship between work experience and entrepreneurial intention have measured the former in terms of years of experience and do not mention the specific nature of work (e.g., product planning, sales work, experience in side-jobs).

In addition, the system of personnel transfers is another factor peculiar to Japanese companies. Most Japanese companies train their employees to be generalists by having them experience many different types of jobs. For example, recruits are typically assigned to product planning, accounting, and sales for a few years. Young employees (especially 20s and 30s) often supervise product planning, where they have opportunities to develop product ideas and create sales plans. This could induce their interest in starting up a business. Therefore, this study presents the following research question.

> RQ: Do company employees increase their interest in entrepreneurship as they gain specific work experience and knowledge?

2. Literature review and hypotheses
2.1. Entrepreneurial intention
It is important to increase the number of young employees in their 20s and 30s who have a positive attitude toward entrepreneurship to increase the number of entrepreneurs in Japan. Therefore, knowledge about entrepreneurship and experience related to entrepreneurship in daily work, such as planning new products and overseeing sales operations, is considered a major driving force for increasing the number of entrepreneurs. Generally, the degree of interest in entrepreneurship is referred to as entrepreneurial intention, but strictly speaking, there is no consensus on its definition (Thompson, 2009; Yuan et al., 2019). According to Ajzen (1991), intentions mean intrinsic motives. Krueger and Brazeal (1994) defined entrepreneurial intention as the orientation to commercialize a new business. Crant (1996) defined it as the desire to own a company. Thompson (2009) stated that entrepreneurial intention is the belief that an individual will start a business.

2.2. Entrepreneurship-related knowledge: entrepreneurship education
Although there are many opportunities to acquire knowledge related to entrepreneurship, it is particularly important to gain vital entrepreneurship education. This means learning the skills and abilities required to start a business, such as knowledge of marketing and accounting, sales and purchasing methods, and customer service techniques (Henry et al., 2005; De Clercq and Arenius, 2006; World Economic Forum, 2009; Bae et al., 2014). Individuals who have taken entrepreneurship-related courses in university or have received

various entrepreneurship-related training or lectures after leaving university are more likely to be entrepreneurially oriented than those without such experience. According to Kolvereid and Moen (1997), students who majored in entrepreneurship have a strong intention to start a new business after graduation. Based on a questionnaire survey conducted on 122 undergraduate students at San Jose State University in the US, Basu and Virick (2008) confirmed that entrepreneurship education positively impacts students' entrepreneurial orientation in their future career choices. Mei et al. (2020) conducted a questionnaire survey on entrepreneurship education among 599 university students in China and, using multiple regression analysis, found that taking entrepreneurship education has a positive effect on the decision to become an entrepreneur and entrepreneurial orientation. From the above, we propose the following hypothesis.

> H1: Employees who have attended entrepreneurship education courses are more interested in starting their own business than those who have not.

2.3. Experience in a managerial position
Managers are responsible for managing subordinates in the execution of various projects while aiming for the completion of the project. In doing so, they plan, organize, and lead a group of people to completion while demonstrating leadership. This managerial experience develops leadership, communication, logical thinking, human resource management, time management, and project management skills (Tovmasyan, 2017). Since these skills are necessary for entrepreneurs, the managerial experience would mean they are experiencing entrepreneurship and would feel closer to starting their own business. Liguori et al. (2017) and Kautonen et al. (2011) argued that an individual's previous work experience and knowledge are important factors in enhancing entrepreneurial orientation. Therefore, we propose the following hypothesis.

> H2: Workers with managerial experience are more interested in entrepreneurship than those without experience.

2.4. Experience in changing jobs
Suppose we compare those who have never changed jobs with those who have. In that case, the latter are exposed to different corporate cultures, supervisors, and job descriptions, meaning a more diverse work experience (Dragan, 2021). If this is the case, those who have worked in two or more companies would be more interested in entrepreneurship than those who have worked in only one company. Yuan et al. (2019) analyzed the results of a questionnaire administered to 438 men and women in their teens to 40s and found that previous work experience was significantly related to entrepreneurial orientation. In addition, Astebro and Thompson (2011) found that those who have a diverse labour market and diverse work experiences (preferring diversity) are more likely to become entrepreneurs than those who do not. Based on the above, we propose the following hypothesis.

> H3: Workers who have changed jobs are more interested in entrepreneurship than those who have not.

2.5. Experience of side job
A side job is also called a "Second job" or "Side hustle." It implies a separate income-generating job alongside a full-time job (Henley Business School of Africa, 2019; Sessions et al., 2021). For company employees to engage in a second job that draws on their hobbies, experiences, skills, and qualifications in addition to their day job broadens their work, improves their skills, and increases their interest in entrepreneurship. Additionally, previous research shows that various work experiences are an important factor

in generating new business ideas (Shane, 2000; Shepherd and DeTienne, 2005). Thus, the following hypothesis is derived.

> H4: Workers who have had a side job are more interested in starting a business than those who have not.

2.6. Experience in new product planning

The company employee in charge of planning a new product (including a new service) clarifies the product's features, calculates the expected sales and profit amount, and prepares a proposal. This is similar to a business plan prepared by an entrepreneur. Therefore, it is believed that the company employees who have engaged in the planning of new products are more interested in entrepreneurship than those who have not had such experience because they learn the knowledge necessary for entrepreneurship through their work. Furthermore, previous research revealed that writing a business plan reinforces entrepreneurial intentions (Bae et al., 2014). Therefore, we propose the following hypothesis.

> H5: Workers experienced in planning new products are more interested in entrepreneurship than those without such experience.

2.7. Experience in product sales

Since the introduction of e-commerce sites such as Amazon and eBay, many people have started using these sites to sell their products or buy and sell products they own. For such company employees with experience in selling products and earning a profit, they can feel the ease of starting a business and the enjoyment of earning a profit, increasing their interest in starting a business. Therefore, the following hypothesis is formulated.

> H6: Workers with product sales experience are more interested in entrepreneurship than those without experience.

3. Measurement

For Entrepreneurial Intention, four items by Zhao et al. (2005) are included: "I am interested in becoming an entrepreneur," "I will probably become an entrepreneur," "I am interested in acquiring a small business," "I am interested in starting and building a high-growth business," and one item by Thompson (2009), "I read books on how to set up a firm" are taken as dependent variables. For each of these five questions, respondents answered on a 5-point Likert scale ranging from "1= strongly disagree" to "5= strongly agree", and the means are used as the variable representing Entrepreneurial Intention. Cronbach's alpha (after adjustments) for this scale reached 0.921.

Entrepreneurship education was determined by the question, "Have you ever attended lectures or training on entrepreneurship?" For the managerial question, respondents were asked, "Are you in a managerial position?" The questions about changing jobs and side jobs are "Have you ever changed jobs?" and "Have you ever had a side job?" For new product planning, we asked, "Have you ever been in charge of new product planning?" Finally, for product sales experience, we used, "Have you ever sold a product on Amazon or other online retailers?" For these six questions, a Yes/No Scale was used.

In Japan, 84% of entrepreneurs were employees of small and medium-sized firms with fewer than 299 employees at the time they started their business (Japan Finance Corporation Research Institute, 2021). Therefore, the survey targets are full-time employees of small and medium-sized enterprises (SMEs) who are university graduates and are in their 20s and 30s (from 23 to 39 years old). These produce most of the entrepreneurs. The survey was conducted in September 2021 using web-based questionnaires, and 630 valid responses were received.

4. Demographics of respondents

The variables of "Gender," "Age," "Marital Status," and "Parent or Sibling run a business" are controlled. Table 1 presents a summary of responses to these variables. There were slightly more female respondents than males; about half were in their 20s and the rest in their 30s. Singles accounted for about two-thirds of the respondents, while married respondents accounted for about one-third (33.5%). The proportion of respondents with a parent or sibling running a business was 18.1%.

Table 1: Demographic profile of respondents

	Categories	Frequency	Percentage
Gender	Male	305	48.4
	Female	325	51.6
Age	23-29 years old	319	50.6
	30-39 years old	311	49.4
Marital status	Single	419	66.5
	Married	211	33.5
Parent or Sibling run a business	Yes	114	18.1
	No	516	81.9

Source: Author's calculations using the data collected

5. Results

Regression analysis tested the six hypotheses using SPSS version 26. Table 2 summarizes the statistical analysis results for correlation. The correlation between entrepreneurial intention and other variables is positive, and eight variables are significant at a 1% level except for age and marital status.

Table 2: Descriptive statistics and correlations matrix of study variables (N=630)

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1	2.900	1.456	1										
2	.484	.500	.168**	1									
3	30.594	4.602	.023	.253**	1								
4	.335	.472	.058	.120**	.281**	1							
5	.181	.385	.249**	.007	.012	.164**	1						
6	.106	.309	.274**	.099*	-.041	.159**	.319**	1					
7	.098	.298	.175**	.149**	.081*	.161**	.246**	.370**	1				
8	.546	.498	.170**	.073	.228**	.167**	.139**	.149**	.098*	1			
9	.208	.406	.302**	.028	-.007	.059	.216**	.331**	.212**	.232**	1		
10	.133	.340	.276**	.171**	.124**	.167**	.240**	.455**	.262**	.198**	.248**	1	
11	.398	.490	.284*	-.094*	-.042	.013	.140**	.182**	.025	.149**	.198**	.177**	1

Notes: 1=Entrepreneurial intention, 2= Gender, 3=Age, 4= Marital status, 5= Parent or Sibling run a business, 6=Entrepreneurship education, 7=Managerial position, 8=Experience in changing jobs, 9=Side job experience,10=Experience in new product planning, 11=Experience in selling products. Pearson's correlation coefficient.
*p <.05, **p <.01 (two-tailed).
Source: Author's calculations using the data collected

Table 3 reports the results of our multiple regression analysis. The variance inflation factor (VIF) was measured to assess multicollinearity. The VIF for all variables in the table is less than 2, suggesting that multicollinearity is not a problem in the analysis. A score of 20.574 (p=.000) for the F value means that the model fits well. Among the control variables, "gender" and "Parent or Sibling run a business" influenced entrepreneurial intention.

Table 3: Multiple regression analysis

Variables	B	SE	β	t	p	VIF
Constant	2.212	.289		7.645	.000	
Gender (0 female,1 male)	.455	.087	.194	5.254	.000	1.122
Age	-.006	.010	-.025	-.652	.515	1.225
Marital status	-.028	.093	-.011	-.297	.766	1.153
Parent or Sibling run a business	.343	.116	.112	2.962	.003	1.186
Entrepreneurship education	.550	.165	.144	3.344	.001	1.538
Managerial position	.133	.152	.034	.872	.383	1.234
Experience in changing jobs	.031	.089	.013	.356	.722	1.161
Side job experience	.488	.111	.169	4.392	.000	1.217
Experience in new product planning	.450	.141	.130	3.188	.002	1.375
Experience in selling products	.291	.088	.121	3.313	.001	1.105
R	.499					
R^2	.249					
Adjusted R^2	.237					
F	20.574					
p	.000					

Notes: Dependent Variable: entrepreneurial intension
Source: Author's calculations using the data collected

The hypotheses test results are as follows: entrepreneurial education in H1 (β=.144, p<.005), "side job experience" in H4 (β=.169, p<.001), "experience in new product planning" in H5 (β=.121, p<.005), "experience in selling products" in H6 (β=.121, p<.005) positively and significantly influence entrepreneurial intention. On the other hand, "managerial position" (β=.034, p>.005) in H2 and "experience in changing jobs" (β=.013, p>.005) in H3 did not support entrepreneurial intention.

The six hypotheses were examined using multiple regression analysis, and as shown in Table 4, four hypotheses were accepted and two were rejected. Entrepreneurship education to acquire various knowledge for starting a business is one of the factors identified in many previous studies, as mentioned above, and was also identified as a factor influencing entrepreneurial intentions in this study. In addition, experience in side job, new product planning and product sales, which have not been addressed in previous studies, were found to be important factors influencing entrepreneurial intention.

Table 4: Result of Hypotheses

Hypotheses	Result
H1.Employees who have attended entrepreneurship education courses are more interested in starting their own business than those who have not.	accepted
H2.Workers with managerial experience are more interested in entrepreneurship than those without experience.	rejected
H3.Workers who have changed jobs are more interested in entrepreneurship than those who have not.	rejected
H4.Workers who have had a side job are more interested in starting a business than those who have not.	accepted

| H5. Workers experienced in planning new products are more interested in entrepreneurship than those without such experience. | accepted |
| H6. Workers with product sales experience are more interested in entrepreneurship than those without experience. | accepted |

Source: Author's analysis

6. Discussion and Conclusion

Entrepreneurial intention plays an important role in entrepreneurial decision-making (Liñán and Chen, 2006). While previous studies on entrepreneurial intention mainly focused on the psychology and attitudes of the subjects, this study focused on the practical knowledge and experience acquired while working in a company to explore the factors influencing entrepreneurial intention. Therefore, six factors — managerial position, experience in, changing jobs, side job, new product planning, and selling products —, were explored, and their correlations with entrepreneurial intention were examined.

The results revealed that entrepreneurial education, experience in, new product planning, selling products, and side job are factors that would enhance entrepreneurial intention.

However, managerial position is not a factor significantly related to entrepreneurial intention. This may be because managers are more likely to continue working for their current company because of the benefits and higher annual salaries associated with managerial positions. The desire to start a business will diminish if this is the case. Experience in changing jobs is also not a factor that significantly impacts entrepreneurial intention. The main reasons for leaving a job in Japanese companies are dissatisfaction with salary and human relations and a deterioration of the company's management practices. Consequently, the reasons for leaving the current post will be resolved if they have successfully moved to another company. Furthermore, starting a business comes with high risk, and they tend not to choose that option. Therefore, it will be necessary to conduct a new survey in the future to verify these two variables.

The results suggest the following important policy measures to increase the number of people who want to start their own business in Japan: encourage companies that prohibit side jobs to lift the ban and have public organizations hold seminars on entrepreneurship for company employees.

This study also has several limitations. First, the study was limited to small and medium-sized enterprises (SMEs). However, even large enterprises have employees who start their own businesses, albeit in small numbers. It is necessary to verify whether the results of this study apply regardless of company size.

Second, it is necessary to take into account that there are different types of side job experiences. In some cases, people take on a second job out of necessity because they cannot make ends meet on the salary from their main job alone, while in other cases they take a side job for work they like, work that makes use of their qualifications or work they are interested in. As the latter are expected to be more interested in starting up businesses than the former, it would be important to consider the content of side jobs by classifying them into several categories.

Furthermore, the salary currently received should also be taken into account. As the amount of average salary varies widely from company to company, it can be assumed that employees with higher salaries are less interested in starting their own businesses. Therefore, it may be necessary to examine whether the amount of salary or annual income is a factor influencing entrepreneurial intention.

References

Acs, Z. J., Desai, S. and Hessels, J., 2008. Entrepreneurship, economic development, and institutions. *Small Business Economics,* 31(3):219-234. https://doi.org/10.1007/s11187-008-9135-9

Ajzen, I., 1985. From intentions to actions: A theory of planned behaviour. In J. Kuhl and J. Beckmann (Eds.). *Action Control: From Cognition to Behavior.* Berlin: Heidelberg: Springer-Verlag, pp. 11-39. https://doi.org/10.1007/9783-642-69746-3_2

Ajzen, I., 1991. The theory of planned behaviour. *Organizational Behavior and Human Decision Processes,* 50(2): 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Åstebro, T. And Thompson, P., 2011. Entrepreneurs, Jacks of all trades or hobos? *Research Policy*, 40(5): 637-649. https://doi.org/10.1016/j.respol.2011.01.010

Bae, T. J., Qian, S., Miao, C. and Fiet, J. O., 2014. The Relationship between Entrepreneurship Education and Entrepreneurial Intentions: A Meta-Analytic Review. *Entrepreneurship Theory and Practice,* 38(2): 217-254. https://doi.org/10.1111/etap.12095

Basu, A. Virick, M., 2008. Assessing entrepreneurial intentions amongst students: A comparative study. *Proceedings of the NCIIA 12th Annual Meeting* (pp. 79-86). Washington, DC: National Collegiate Inventors and Innovators Alliance (NCIIA), Hadley, MA, USA.

Crant, J. M., 1996. The Proactive Personality Scale as a Predictor of Entrepreneurial Intentions*. Journal of Small Business Management*, 34(3): 42-49. https://doi.org/10.12691/jbe-2-3-2

De Clercq, D. Arenius, P., 2006. The Role of Knowledge in Business start-up Activity. *International Small Business Journal*, 24(4): 339-358. https://doi.org/10.1177/0266242606065507

Dragan, G. B., Schin, G. C., Sava, V. and Panait, A. A., 2022. Career path changer: the case of public and private sector entrepreneurial employee intentions, *International Journal of Entrepreneurial Behavior & Research*, 28(1): 26-44. https://doi.org/10.1108/IJEBR-05-2021-0400

Fatoki, O., 2014. The Entrepreneurial Intention of Undergraduate Students in South Africa: The Influences of Entrepreneurship Education and Previous Work Experience. *Mediterranean Journal of Social Sciences,* 5(7): 294-299. https://doi.org/10.5901/mjss.2014.v5n7p294

Henley Business School of Africa (HBSA) (2019). *What is the Future of Work in South Africa? Examining the Side Hustle Economy*.

Henry, C., Hill, F., and Leitch, C., 2005. Entrepreneurship education and training: can entrepreneurship be taught? Part I. *Education + Training,* 47(2), 98-111. https://doi.org/10.1108/00400910510586524

Japan Finance Corporation Research Institute, 2021. *Survey on Business Start-ups: special surveys*, 2020 (Nihon Seisaku kinyuu kouko). https://ssjda.iss.u-tokyo.ac.jp/chosa-hyo/1413c.pdf (in Japanese).[accessed 28 March 2022].

Kautonen, T., Luoto, S. and Tornikoski, E. T., 2011. Influence of work history on entrepreneurial intentions in "prime age" and "third age." A preliminary study. *International Small Business Journal*, *28*(6): 583-601. https://doi.org/10.1177/0266242610368592

Kolvereid, L. Moen, O., 1997. Entrepreneurship among business graduates: does a major in entrepreneurship make a difference? *Journal of European Industrial Training*, *21*(4): 154-160. https://doi.org/10.1108/03090599710171404

Krueger, N. F. Jr. Brazeal, D. V., 1994. Entrepreneurship Potential and Potential Entrepreneurs, *Entrepreneurship Theory and Practice*, *18*(3): 91-104. https://doi.org/10.1177/104225879401800307

Liguori, E. W., Bendickson, J. S. and McDowell, W. C., 2018. Revisiting entrepreneurial intentions: a social cognitive career theory approach. *International Entrepreneurship and Management Journal*, *14*(1): 67-78. https://doi.org/10.1007/s11365-017-0462-7

Liñán, F. Chen, Y. W., 2006. Testing the Entrepreneurial Intention Model on a Two-Country Sample. Documents de Treball, Working Papers 06/7, Departament d'Economia de l'Empresa, Bellaterra: Universitat Autònoma de Barcelona.

Mei, H., Lee, C. H. and Xiang, Y., 2020. Entrepreneurship Education and Students' Entrepreneurial Intention in Higher Education. *Education Sciences, 10*(9): 257. https://doi.org/10.3390/educsci10090257

Naude, W., 2008. *Entrepreneurship in economic development*. Research Paper Helsinki, Finland, UNU-WIDER: 47: 1-45.

Sessions, H., Nahrgang, J. D., Vaulont, M., Williams, R. and Bartels, A., 2021. Do the Hustle! Empowerment from Side-Hustles and Its Effects on Full-Time Work Performance. *Academy of Management Journal*, 64: 235-264. https://doi.org/10.5465/amj.2018.0164

Shane, S., 2000. Prior Knowledge and the Discovery of Entrepreneurial Opportunities. *Organization Science*, 11(4): 448-69. https://doi.org/10.1287/orsc.11.4.448.14602

Shepherd, D. A., and DeTienne, D. R., 2005. Prior knowledge, potential financial reward, and opportunity identification. *Entrepreneurship Theory and Practice*, *29*(1),91-112. https://doi.org/10.1111/j.1540-6520.2005.00071

SMEA, 2017. *2017 White Paper on Small and Medium Enterprises in Japan*, Small and Medium Enterprise Agency (SMEA).

SMEA, 2018. *2018 White Paper on Small and Medium Enterprises in Japan.* Small and Medium Enterprise Agency (SMEA).

Thompson, E. R., 2009. Individual Entrepreneurial Intent: Construct Clarification and Development of an Internationally Reliable Metric. Entrepreneurship Theory and *Practice*, 33(3): 669-694. https://doi.org/10.1111/j.1540-6520.2009.00321.x

Tovmasyan, G., 2017. The Role of Managers in Organizations: Psychological Aspects. *Business Ethics and Leadership,* 1(3): 20-26. DOI:10.21272/bel.1(3).20-26.2017

Van Stel, A., Carree, M. and Thurik, R., 2005. The Effect of Entrepreneurial Activity on National Economic Growth. *Small Business Economics*, *24*(3): 311-321. https://doi.org/10.1007/s11187-005-1996-6

World Economic Forum, 2009. *Educating the next wave of entrepreneurs: A report on the global education initiative*. Geneva, Switzerland: WEF.

Yuan, L., Qalati, S., Iqbal, S., Hussain, R. and Ali, S., 2019. Impact of Prior Work Experience on Entrepreneurial Intention and Theory of Planned Behaviour in the Context of Pakistan. *Journal of Entrepreneurship & Organization Management*, 8(268): 1–9. https://doi.org/10.4172/2169-026X.1000268

Zhao, H., Seibert, S. E. and Hills, G. E., 2005. The mediating role of self-efficacy in the development of entrepreneurial intentions. *Journal of Applied Psychology*, 90(6): 1265-1272. https://doi.org/10.1037/0021-9010.90.6.1265

Bio-note

Takeshi Nakayama is a Professor (Ph.D.) of Management in the Faculty of Business at Kyoritsu Women's University in Tokyo, Japan. He studies and teaches management strategy, small business management, and entrepreneurship. In these areas, he has published many journal articles and books.

HAS SERBIA REACHED THE QUALITY OF EDUCATION OF EU COUNTRIES? MULTI-CRITERIA EVALUATION

Milan Markovic[*]
Innovation Centre of the University of Niš, University of Niš, Niš, Republic of Serbia
markovicmilan89@gmail.com

Abstract: *The aim of the paper is to analyse the position of the Republic of Serbia in relation to the performance of education in the countries of the European Union (EU), which was evaluated based on a multi-criteria analysis. For that purpose, the following criteria from the Eurostat database were used: Tertiary educational attainment (age group 25-34), Participation in early childhood education, Adult participation in learning, Share of individuals having at least basic digital skills and Early leavers from education and training. In the ranking of countries, the Grey Relational Analysis (GRA) was applied, while the weighting coefficients were calculated using the equal weighting method. Research shows that Serbia lags far behind EU countries in terms of the quality of education, so educational policy makers must improve that quality in the coming period, especially when it comes to the indicator - Participation in early childhood education. In addition, the hypothesis that highly developed countries (based on GDP per capita) have higher values of the composite index of education was confirmed. The best results are achieved by the countries of Northern Europe, so in improving the level of education, the practice of these countries must be followed and adopted by policy makers.*

Keywords: education, socio-economic sustainability, multi-criteria analysis, Grey Relational Analysis (GRA), composite index.

JEL classification: C44, I25.

1. Introduction

In recent decades, the concept of sustainable development has increasingly become the occupation of many researchers. The original goal of sustainable development was to balance economic growth and environmental protection. Nowadays, the social dimension of sustainable development is a subject of wide interest. This segment of sustainable development implies: reduction and/or eradication of poverty, good health, high quality education, reduction of inequality in society, social inclusion. Quality education is one of the drivers of sustainable development (SDG 4), whereby the availability of education for all groups and strata of the population is highlighted (United Nations Development Programme, 2022). Special emphasis is placed on children who should complete primary and secondary education free of charge. This paper deals with measuring the quality of education in Serbia and the countries of the European Union (EU) using multi-criteria analysis method based on a combination of selected indicators.

A quality education system achieves positive effects on the individual and the entire society. An individual with a better education will more easily find a suitable job and ensure a better socio-economic status for himself and his family members. On the other hand, education is

---

part of human capital, which is a factor of economic growth and development (Madžar, 2022; Marjanović and Marković, 2022). In addition, there are also non-economic effects that are reflected in social inclusion, improved access to health and other services, as well as the possibility of higher income, which contributes to the reduction of poverty.

The originality of this study consists in the construction of a unique aggregate index that will include indicators from the Eurostat database related to the quality of education and through which the performance of any country can be measured. An additional contribution is looking at the position of Serbia, as a candidate country, in relation to the EU countries, bearing in mind the current process of European integration. The aim of the paper is to use scientific methodology to inform the academic community and the creators of economic and development policies about the state and quality of education in Serbia compared to EU countries.

After the introduction, the paper explains the applied methodology and the development of the composite index (as a synthetic measure of the quality of education) through a multi-criteria model. Then, the results of the research are presented and the main observations are discussed. The last section deals with concluding considerations of the main results, an overview of recommendations for public policy makers and directions for future research.

2. Literature review

Education plays a significant role in the socio-economic development of any country, especially because it increases the level of employment, encourages innovation, research and development, as well as social cohesion. In light of this, the quality of the labour force on the market largely depends on the quality of education. As a goal, improving the quality of education is outlined in strategies and documents at the EU level (for example, The Europe 2020 strategy and Lisbon strategy). These strategies are based on sustainable, inclusive and smart growth, which can only be achieved through the development of an economy based on knowledge and innovation (Roszkowska and Filipowicz-Chomko, 2020). Quality (higher) education will create ideal conditions for smart growth based on the development of science and technology. That is why it is necessary to include children in the process of preschool education from early childhood. Education until starting school aims at both education and socialization of children. During education, the main challenge is to achieve the lowest possible percentage of those who leave school early. In this sense, there are various programs to prevent dropping out of schools, where poverty is one of the leading factors. Another goal that should be achieved is to have a tertiary diploma, but also to continue permanent training and lifelong learning, considering the constant changes in the way of performing activities. From the point of view of the individual, in this way the problem of low wages is overcome, while at the level of the national economy conditions are created for the construction of a high-tech society in which social costs will be as low as possible. As a special part of the quality education in modern society where the service sector dominates, the acquisition of digital skills and literacy is emphasized. That is why the authors chose the following criteria in the process of measuring education performance and multi-criteria ranking of countries: *Tertiary educational attainment (age group 25-34)*, *Participation in early childhood education*, *Adult participation in learning*, *Share of individuals having at least basic digital skills* and *Early leavers from education and training*.

The Eurostat database is the basis for assessing sustainability in various areas, including the quality of education (Roszkowska and Filipowicz-Chomko, 2020). There are not many works that consider this problem using synthetic indicators. One of the few studies that uses similar indicators in measuring the quality of education at the EU level applies the extended TOPSIS framework (Roszkowska and Filipowicz-Chomko, 2020). Their research, combining

the following indicators (*Early leavers from education and training*, *Tertiary education*, *Early childhood education*, *Underachievement in reading*, *maths, science*, *Employment rates of recent graduates* and *Adult participation in learning*), emphasizes that Northern European countries show the best educational performance, while the worst placed countries are Bulgaria and Romania. Certain authors are only concerned with measuring the performance of higher education and in developing a composite performance index they apply the following indicators: *Research*, *Teaching*, *Service* and *Finance* (Asif and Searcy, 2014). There are also several papers that consider similar performance related to the achievement of sustainable development goals in the EU using multi-criteria analysis. Thus, Ture, Dogan and Kocak (2019) in their study evaluate the achievement of the goals of the Europe 2020 strategy based on various economic, demographic, innovation and educational criteria. Corrales-Herrero and Rodriguez-Prado (2021) measure the living conditions of the younger population in the EU using a composite indicator that, in addition to indicators of education and training, also includes indicators of social inclusion and employment. They conclude that there has been an improvement in the quality of education and estimate that the best conditions for this have the countries of Northern and Central, bearing in mind all the analysed criteria, Europe. There is almost no study that evaluates people's quality of life and social and economic sustainability using a multi-criteria procedure, which does not include indicators of education (Beslerová and Dzuričková, 2014). Marković et al. (2022) in assessing the social dimension of sustainable development, in addition to the economic components, use certain criteria related to early school leaving and youth education. In determining social development and economic and social disparities, economic, educational, health and living standard indicators are indispensable (Pîrvu et al. 2018). As innovation and digitalization are the foundation of modern society, current research on the quality of education often includes digital competencies (Zakrajšek et al., 2021), so the author applies this type of criteria in his work as well.

3. Research methodology

Grey Relational Analysis (GRA) is a multiple-criteria decision-making method created by Deng Julong in 1982 (Ju-Long, 1982; Lin and Lin, 2002). As a method of multi-criteria analysis, it is applied in almost all sciences: construction, medicine, informatics, social sciences, agriculture (Patil, Walke Gaurish and Mahesh, 2019). Using this technique, it is possible to optimize and rank alternatives based on many, often conflicting criteria. Before carrying out the analysis, it is necessary to select the indicators that will best represent the problem, and then collect data from the relevant databases. After that, decision makers can process the data. Composite indices are obtained by applying this method as follows (Tosun, 2006; Kuo, Yang and Huang, 2008; Jožić, Bajić and Celent, 2015; Maksimović et al., 2016; Patil, Walke Gaurish and Mahesh, 2019; Grdinić-Rakonjac et al., 2021; Kehinde and Chukwuka, 2022):

a. At the beginning, it is necessary to normalize the data depending on the type of criteria:
i) for benefit criteria ('larger is the better'):

$$x_{ij} = \left(\frac{y_{ij} - \min(y_{ij})}{\max(y_{ij}) - \min(y_{ij})} \right) \tag{1}$$

ii) for cost criteria ('smaller is the better'):

$$x_{ij} = \left(\frac{\max(y_{ij}) - y_{ij}}{\max(y_{ij}) - \min(y_{ij})} \right) \tag{2}$$

where:
y_{ij} are the original values of the criteria.

b. Then, by applying the following formula, the Grey relational coefficient is determined:

$$\gamma(X_{0j}, X_{ij}) = \frac{(\Delta_{min} + \xi\Delta_{max})}{(\Delta_{ij} + \xi\Delta_{max})} \tag{3}$$

where:

$$\Delta_{ij} = |X_{0j} - X_{ij}| \tag{4}$$
$$\Delta_{min} = min\{\Delta_{ij}, i = 1, 2, \ldots, m; j = 1, 2, \ldots, n\} \tag{5}$$
$$\Delta_{max} = max\{\Delta_{ij}, i = 1, 2, \ldots, m; j = 1, 2, \ldots, n\} \tag{6}$$

ξ - is the distinguishing coefficient [0,1] that has an initial and most commonly used value of 0.5.

c. Finally, the value of the composite index (Grey relational grade) is calculated and a certain method is applied to determine the weight of the criteria.

$$\Gamma(X_0, X_i) = \sum_{j=1}^{n} w_{j\gamma}(x_{0j}, x_{ij}) \tag{7}$$

where:

$$\sum_{j=1}^{n} w_{ij} = 1 \tag{8}$$

d. The alternatives are ranked according to the decreasing values of the obtained index.

The last segment of the methodological explanation presents a description of the criteria used in the previously defined multi-criteria model (Table 1). Data for all criteria refer to 2021, except for the second indicator (*Participation in early childhood education*) where data from 2020 were used, as the last available values from the database. In this paper, the author chose the equal weighting method, so that all indicators will have equal relative importance in the formation of the aggregate measure of the quality of education (1/5 = 0.20).

Table 1: Description of criteria of the quality of education

Criteria name	Definition
Tertiary educational attainment, age group 25-34 (in %)	This indicator was obtained as a percentage of the population aged 25 to 34 who have university or similar higher education.
Participation in early childhood education (in %)	Participation in early childhood education means the share of children from the age of 3 until starting school who were involved in early education and training.
Adult participation in learning (in %)	This indicator measures the share of the population aged 20 to 64 (according to the total population of the same group of people) who stated that they had received formal or non-formal education or training in the 4 weeks prior to the survey.
Share of individuals having at least basic digital skills (in %)	The indicator represents the percentage of people (age group 16–74) who possess basic digital skills, which include the following areas: communication, information, problem solving, software and security.
Early leavers from education and training (in %)	This indicator shows the percentage of the population aged 18 to 24 with at most lower secondary education who were not in training or in the education system in the period of 4 weeks before the survey.

Source: Eurostat, 2022.

4. Results and Discussion

Table 2 provides descriptive statistics of the criteria values. The minimum, maximum and mean values are shown, as well as the standard deviation and the coefficient of variation as measures of dispersion. EU countries differ widely when it comes to education performance; the highest deviation from the mean value is present in the criterion - *Share of individuals having at least basic digital skills*, while the greatest data variability is recorded in the criterion - *Adult participation in learning*.

Table 2: Descriptive statistics of education quality criteria

Criteria name	Max	Min	Mean	St. Deviation	CV
Tertiary educational attainment, age group 25-34 (in %), 2021	62.6 (Luxembourg)	23.3 (Romania)	44.13	9.92	0.22
Participation in early childhood education (in %), 2020	100.0 (Ireland, France)	69.1 (Serbia)	89.53	8.17	0.09
Adult participation in learning (in %), 2021	34.7 (Sweden)	1.8 (Bulgaria)	12.37	8.32	0.67
Share of individuals having at least basic digital skills (in %), 2021	79.0 (Netherlands, Finland)	28.0 (Romania)	55.71	12.19	0.22
Early leavers from education and training (in %), 2021	15.3 (Romania)	2.4 (Croatia)	8.17	3.36	0.41

Source: author's calculation based on data from the Eurostat database

Romania and Italy have less than 30% of the population who have completed tertiary education. On the other hand, Luxembourg is at the top in terms of the percentage of those with a tertiary degree. Ireland and France have achieved that all children from three years to school age are included in education and training programs, in contrast to Serbia, where this participation is at the lowest level. Sweden and Finland stand out as countries with the highest percentage of adults involved in some kind of education. On the contrary, Bulgaria is in the biggest problem in this matter. The best knowledge of basic digital skills is present in the Netherlands and Finland, while at the other end is Romania. Based on the Europe 2020 strategy, the maximum rate of early school leaving should be 10% (European Commission, 2010). Romania, Spain, Italy, Bulgaria, Hungary, Germany, Malta and Cyprus have not reached the stated target by 2021, which significantly increases the risk of a vicious cycle of poverty and social exclusion in the mentioned countries.

Based on the combination of criteria that show the quality of education, Table 3 is presented. It summarizes the values of the composite index and shows the position of the analysed countries. Very similar results were shown by other studies that perform a multi-criteria ranking of EU countries according to education performance (Roszkowska and Filipowicz-Chomko, 2020). According to the research results, the best education performance is achieved by all countries of Northern and Western Europe, except Austria and Germany. Serbia has a higher value of the composite index than only two EU countries - Romania and Bulgaria. Germany, as a highly developed country, unexpectedly took 22nd

place. The key reasons for this are the high number of people who leave education early, as well as the small percentage of the population that has completed university education.

Table 3: Ranking of countries according to the composite performance indices of the quality of education

Rank	Country	Composite index value	Rank	Country	Composite index value
1	Ireland	0.5568	15	Latvia	0.3344
2	Netherlands	0.5332	16	Estonia	0.3295
3	Sweden	0.5167	17	Malta	0.3012
4	Finland	0.4832	18	Croatia	0.2964
5	Denmark	0.4418	19	Poland	0.2932
6	Luxembourg	0.4403	20	Czechia	0.2903
7	France	0.4325	21	Greece	0.2699
8	Belgium	0.4033	22	Germany	0.2645
9	Slovenia	0.3761	23	Slovakia	0.2562
10	Lithuania	0.3753	24	Hungary	0.2484
11	Portugal	0.3578	25	Italy	0.2454
12	Cyprus	0.3523	26	SERBIA	0.2158
13	Spain	0.3492	27	Bulgaria	0.1692
14	Austria	0.3377	28	Romania	0.0874

Source: author's calculation based on data from the Eurostat database

It is interesting that the first six ranked countries are those EU countries that have the highest amount of GDP per capita (World Bank, 2021), so there is obviously a nexus between the quality of education and the level of economic development of the countries. In order to statistically confirm such a relationship, the author used Spearman's correlation coefficient according to which there is a very high and statistically significant correlation between these variables, as the coefficient is 0.78, while the correlation is statistically significant at the level of 0.01. There are other studies that have examined the interdependence of education and economic development and found a high level of association (Panagiotis, 2019).

The study shows significant differences between EU countries in education performance, which may be the result of differences in institutional configurations (Corrales-Herrero and Rodriguez-Prado, 2021). The Republic of Serbia still does not achieve an adequate quality education. It is at the very bottom of the analysed European countries. The biggest obstacle to achieving high performance is low *Participation in early childhood education*. However, taking into account other indicators of education, Serbia also has a very poor performance.

5. Conclusion

The paper showed significant differences among the EU member states, taking into account the values of the indicators per country, as evidenced by other studies dealing with education and socio-economic sustainability. The results obtained on the basis of the composite index of the quality of education clearly show that the countries of Northern and Western Europe have significantly better performance than the countries of Southern and Eastern Europe. This is in accordance with the results of the research of other authors who looked at the quality of education, but also social sustainability, socio-economic development, assessment of people's quality of life and the degree of achieved sustainable development. Quality education is significantly related to the level of economic development of the country, which the study confirmed based on the correlation analysis.

The aim of the paper was to propose one of the methodological approaches in the construction of composite indexes of the quality of education. The second goal was to assess Serbia's lagging behind EU countries, as well as to compare EU countries according to the degree of success in the implementation of educational public policies. The ultimate goal is to achieve high-quality and inclusive education, which is also the goal of the Europe 2030 agenda (European Commission, 2019). Serbia should make additional efforts in the transition period. International cooperation with universities in the EU through various programs (for example, ERASMUS+) can help in this sense. A special role should be played by schools that will constantly improve cooperation with parents in order to solve various problems related to learning and absenteeism. Increasing the speed, availability and coverage of the Internet, especially in rural areas, is necessary to increase the percentage of digitally literate population.

The work fulfilled its original objective - to present the position and place of Serbia in relation to the quality of education in the EU using a multi-criteria framework in order to assess Serbia's readiness to integrate into the European education system in the future. Although the paper is primarily aimed at policy makers in Serbia, the information obtained from the research results can be used by a wide range of stakeholders, including but not limited to practitioners, scientists and the general public.

Determining the relationship between educational performance and employment rates can be a guideline for future research. In this way, in addition to the evaluation of the quality of education, it is possible to determine the compatibility of the educational policy and the labour market. In addition, determining the directions of education reforms and the education system in the Republic of Serbia can be the subject of new research, as well as performance analysis over time. Continuous monitoring of Serbia's place in relation to EU countries will be the best indicator of the success of public policy makers in the field of education.

6. Acknowledgements

References

Asif, M. and Searcy, C. 2014. A composite index for measuring performance in higher education institutions. *The International Journal of Quality & Reliability Management*, 31(9), pp. 983-1001. https://doi.org/10.1108/IJQRM-02-2013-0023

Beslerová, S. and Dzuričková, J. 2014. Quality of life measurements in EU countries. *Procedia Economics and Finance*, 12, pp. 37-47. http://dx.doi.org/10.1016/S2212-5671(14)00318-9

Corrales-Herrero, H. and Rodriguez-Prado, B. 2021. Measuring youth living conditions in Europe: A multidimensional cross-country approach. *Social Indicators Research*, 155(3), pp. 1077-1117. https://doi.org/10.1007/S11205-021-02608-8

Grdinić-Rakonjac, M., Antić, B., Pešić, D. and Pajković, V. 2021. Construction of road safety composite indicator using grey relational analysis. *Promet-Traffic&Transportation*, 33(1), pp. 103-116. https://doi.org/10.7307/ptt.v33i1.3587

European Commission 2010. *Europe 2020. [pdf].* A strategy for smart, sustainable and inclusive growth. Available at: https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf , [accessed 08.08.2022].

European Commission 2019. *Towards a Sustainable Europe by 2030. [pdf].* Available at: https://ec.europa.eu/info/sites/default/files/rp_sustainable_europe_30-01_en_web.pdf , [accessed 15.08.2022].

Eurostat 2022. *Database [online].* Available at: https://ec.europa.eu/eurostat/data/database, [accessed 01.08.2022].

Jožić, S., Bajić, D., and Celent, L. 2015. Application of compressed cold air cooling: achieving multiple performance characteristics in end milling process. *Journal of Cleaner Production*, 100, pp. 325-332. https://doi.org/10.1016/j.jclepro.2015.03.095

Ju-Long, D. 1982. Control problems of grey systems. *Systems & control letters*, 1(5), pp. 288-294. doi: https://doi.org/10.1016/S0167-6911(82)80025-X

Kehinde, A. J. and Chukwuka, O.J. 2022. Determination of an efficient power equipment oil through a multi-criteria decision making analysis. *Vojnotehnički glasnik*, 70(2), pp. 433-446. https://doi.org/10.5937/vojtehg70-36024

Kuo, Y., Yang, T., and Huang, G.W. 2008. The use of grey relational analysis in solving multiple attribute decision-making problems. *Computers & industrial engineering*, 55(1), pp. 80-93. https://doi.org/10.1016/j.cie.2007.12.002

Lin, J.L. and Lin, C.L. 2002. The use of the orthogonal array with grey relational analysis to optimize the electrical discharge machining process with multiple performance characteristics. *International Journal of machine Tools and manufacture*, 42(2), pp. 237-244. https://doi.org/10.1016/S0890-6955(01)00107-9

Madžar, L. 2022. Macroeconomic Analysis of the Financing of Education System in the Republic of Serbia. *Oradea Journal of Business and Economics*, 7(1), pp. 8-18. http://doi.org/10.47535/1991ojbe134

Maksimović, M., Urošević, S., Stanujkić, D. and Karabašević, D. 2016. Selection a development strategy of mining tourism based on the grey relational analysis. *Mining and metallurgy engineering Bor*, 1, pp. 115-124. https://doi.org/10.5937/mmeb1601115M

Marjanović, I. and Marković, M. 2022. Relationship Between Population Health and Economic Development on the Example of European Countries. In S. Živković, B. Krstić and T. Rađenović Eds., *Handbook of Research on Key Dimensions of Occupational Safety and Health Protection Management.* Hershey, USA: IGI Global, pp. 368-389. https://doi.org/10.4018/978-1-7998-8189-6.ch018

Marković, M., Stanković, J.J., Digkoglou, P. and Marjanović, I. 2022. Evaluation of Social Protection Performance in EU Countries: Multiple-criteria Decision Analysis (MCDA). [Ocena skuteczności ochrony socjalnej w krajach UE: Wielokryterialna analiza decyzji (MCDA)]. *Problemy Ekorozwoju / Problems of Sustainable Development*, 17(2), pp. 124-132. https://doi.org/10.35784/pe.2022.2.13

Panagiotis, K. 2019. Quality of Education and Economic Development in the EU. In *8th International Symposium and 30th National Conference on Operational Research*. May 16-18, 2019, Patras, Greece, (pp. 164-167). Available at: http://eeee2019.teiwest.gr/docs/HELORS_2019_proceedings.pdf#page=165 , [accessed 22.08.2022].

Patil, A., Walke Gaurish, A. and Mahesh, G. 2019. Grey relation analysis methodology and its application. *Res. Rev. Int. J. Multidisciplinary*, 4(2), pp. 409-411. Available at: https://core.ac.uk/download/pdf/211839019.pdf , [accessed 10.08.2022].

Pîrvu, R., Bădîrcea, R., Manta, A. and Lupăncescu, M. 2018. The effects of the cohesion policy on the sustainable development of the development regions in Romania. *Sustainability*, 10(7), pp. 2577. https://doi.org/10.3390/su10072577

Roszkowska, E. and Filipowicz-Chomko, M. 2020. Measuring sustainable development in the education area using multi-criteria methods: a case study. *Central European Journal of Operations Research*, 28(4), pp. 1219-1241. https://doi.org/10.1007/s10100-019-00641-0

Tosun, N. 2006. Determination of optimum parameters for multi-performance characteristics in drilling by using grey relational analysis. *The International Journal of Advanced Manufacturing Technology*, 28(5), pp. 450-455. https://doi.org/10.1007/s00170-004-2386-y

Ture, H., Dogan, S. and Kocak, D. 2019. Assessing Euro 2020 strategy using multi-criteria decision making methods: VIKOR and TOPSIS. *Social Indicators Research*, 142(2), pp. 645-665. https://doi.org/10.1007/s11205-018-1938-8

United Nations Development Programme 2022. *SDG4 – Quality Education. [online]*. Available at: https://www.undp.org/sustainable-development-goals#quality-education , [accessed 13.08.2022].

Zakrajšek, S., Rajkovič, V., Bernik, M., Jereb, E. and Rajkovič, U. 2021. Evaluation of education scenarios for acquiring digital competences of secondary school students in Slovenia. *Central European Journal of Operations Research*, 29(3), pp. 841-857. https://doi.org/10.1007/s10100-021-00746-5

World Bank 2021. *GDP per capita. [database].* Available at: https://data.worldbank.org/indicator/NY.GDP.PCAP.CD?most_recent_value_desc=true , [accessed 18.08.2022].

Bio-note

Milan Marković, PhD in Economics, is a *Research Associate at the Innovation Centre of the University of Niš*. From 2014 to 2019 he was engaged in the project "*Improving the Competitiveness of the Public and Private Sector by Networking Competences in the Process of European Integration of Serbia*". He is a member of many scientific societies, editorial boards and scientific committees. He has published one monograph and over 40 scientific papers in prestigious international journals in the field of economic policy, sustainable development and agricultural economics.

GREEN HUMAN RESOURCE PRACTICES AND ENVIRONMENTAL PERFORMANCE OF FIRMS: A REVIEW OF LITERATURE AND RESEARCH AGENDA

Okharedia Goodheart Akhimien, Alasa Paul Kadiri[*]
Department of Business Administration, Faculty of Management Sciences, University of Benin, Benin City, Nigeria
goodheartakhimien@gmail.com
alasa.kadiri@uniben.edu

Abstract: *This paper aims to provide conceptual and empirical literature on green human resource practices and environmental performance of firms. The paper adopted conceptual and theoretical approaches to achieving its objective. This was done by critically reviewing extant literature on green human resource practices and environmental performance of firms. Based on the review of extant literature, it was observed that green human resource practices stimulate the environmentally sustainable performance of firms. The paper identified research gaps for future studies based on the methodological gaps of extant studies identified. It is recommended that the link between green human resource practices such as green recruitment and selection, green performance appraisal, green compensation and benefits, and green training and development and the environmentally sustainable performance of oil firms in Nigeria should be further explore.*

1. Introduction

Environmental pollution occasioned by daily operations of organizations has brought untold significant climate change, carbon emission and global warming that is increasingly threatening the lives of humans, plants, agriculture, and wildlife (Chaudhary, 2019). These harmful effects have drawn the attention of policymakers across the globe to develop a wide range of environmentally-friendly laws and policies including cutting emission and gas flaring which is rampant in manufacturing (Pham, Tuckova & Jabbour, 2019). Most countries, especially developed countries offer tax incentives to firms to encourage them to develop and use green energy. These laws and policies though are rightly directed to curb the devastating effects of incessant emission which has resulted in the frequent occurrence of earthquakes, floods, the disappearance of certain species and stunted growth of animal and agricultural live stocks, experts have argued and pushed forward the adoption of green human resource practices as a step in the right direction that might help in preventing and minimizing environmental pollution emanating from the operations of firms (Pham, Hoang, & Phan, 2019). This is because green human resources practices stimulate organizations toward the implementation of an eco-friendly environment and cleaner production policies, which is central in safeguarding the natural environment for future generations and preventing the destructive effects of climate change (Nawangsari & Sutawijaya, 2019).

---

[*] Corresponding author: Alasa Paul Kadiri

Green human resource practices focus on how best human resource practices can be deployed to prevent pollution and reduce the environmental effects caused by the operations of firms (Tang, et al., 2018). These are eco-environmental friendly human resource practices, which is done by aligning the environmental goals with the traditional human resources practices. Green human resource practices have been decomposed into green recruitment and selection, green training and development, green performance management/appraisal, green reward and compensation (Adjei-Bamfo, et al., 2019). Each of these HRM practices is believed to condition the mental-cognitive of employees working in an organization to engage in eco-environmentally friendly behaviours to help their organizations achieve and sustain a reduction of emissions emanating from their operations (Iqbal, et al., 2018). They have also been linked to environmental sustainable performance, which is defined as the extent to which a firm excels in protecting the environment through its carbon footprint emanating from its operations and compliance to regulatory laws of reducing emissions (Rawashdeh, 2018).

Past studies link green human resource practices with decreased pollution of the natural environment. In Nigeria, oil firms have been recognized to engage in dangerous practices such as environmental pollution through the emission of toxic waste, oil spills and gas flares. A practical example is the Niger Delta region, where the geochemical composition of the soil of the host communities have been greatly polluted and poisoned. The harmful effect of oil spillage by oil firms in the Niger delta is visible in the farmlands of host communities resulting in poor farm yields, low fishing activities, polluted waters and invariably an increase in water-borne diseases. These have resulted in increased studies on green human resource practices and environmentally sustainable performance in many local and international journals by Nigerian researchers and management experts in that field of study. However, the extent to which oil firms engage in green human practices in host communities in the Niger Delta given the level of environmental degradation host communities suffers every time toxic organic and inorganic compounds are released into the natural environment over the years is yet to be fully known. Also, the effect of such human resource practices on the environmental performance of oil firms has not been fully explored. This paper reviews conceptual and empirical studies on green human resource practices (GHRM) and the environmental performance of firms.

2. Review of Literature

2.1. Environmental Performance
The construct, environmental performance is explained as the extent to which a firm excels in protecting the environment through carbon footprint emanating from its operations (Rawashdeh, 2018). It is more of environmental care by a constant reduction in emissions, eliminating toxicity and spillage as well as compliance to regulatory laws (Owino & Kwasira, 2016). Environmental performance is also viewed as the continuous recycling of waste products, reduction of energy use, and continued reduction in carbon credits and emissions in firm operations (Obeidat, Al Bakri, & Elbanna, 2018). It is a measure of the production process that minimizes cost and resources while reducing the emission of toxic waste into the ecosystem (Iqbal, et al., 2018).

Green HRM Practices
Green human resource practices have been defined in similar ways by different authors as the extent to which an organization ensures its human resources are ecologically balanced and environmentally affable through effective integration of environmental sustainable goals with traditional HR practices (Chaudhary, 2019). Green HRM is a situation in which employees are trained and encouraged to engage in work behaviour and HRM practices that conform with green HRM. Areas of interest as it pertains to green HRM practices includes

selection and training, performance appraisal and promotion, training and development, rewards and staff disciplinary procedures (Dumont, Shen, & Deng, 2017; Iqbal, et al., 2018; Saeed, et al., 2019). In essence, organizations that practice green HRM encourages organizational members to engage in green HRM behaviour. Employees who engage in green behaviour in their daily work activities are reinforced positively through the offer of rewards, favourable performance appraisals and promotion among others.

Green HRM practices are simply greening functional dimensions of HR practices with the environmental objective of sustainable utilization of natural resources, reduction in carbon footprints, and avoiding the release of pollutants and degradation of the environment. It is aligning the content of HR practices with the environmental goal of developing the workforce's capacity to behave in an eco-environmental friendly manner toward enhancing the environmental performance of the firms for the benefit of the society (Mishra, 2017). Green human resource practices are alignments and integration of environmentally sustainable development into the recruitment and selection process, training and development, reward system, and performance management of a firm.

Green recruitment and selection: This is the extent to which the organization attracts and chooses applicants who are conscious of environment-friendly activities and the effect of operations of the organization on the environment (Pham & Paillé, 2019). It deals with the recruitment and selection of prospective applicants who are conscious and knowledgeable in the area of sustainable development and green HRM practices (Moktadir, et al., 2020). Green recruitment and selection is simply an integration of environmentally sustainable development into the recruitment process by screening prospective applicants based on the knowledge they have towards green practices, green branding of their employers, and how their personality fits into it (Pham Tučková & Phan, 2019).

The practice of green recruitment and selection usually start by evaluating and selecting job applicants based on their skills and ensuring that their personality matches the environmental aspects in their job descriptions (Adjei-Bamfo, et al., 2019). This selection is done by conducting a series of tests to elicit the information from job applicants about green awareness, green employer branding (image and reputation of employer-related to environmental management) and perceive a good fit between their own and an organization's values of green practices (Pham & Paillé, 2019). The information elicited from the job applicants about an organization's environmental aspects in job descriptions and employee specifications can be used as criteria for attracting, selecting, recruiting and employing prospective applicants (Nawangsari & Sutawijaya, 2019). The success of such recruitment will help an organization to have a workforce that is familiar with the green practices and environmental systems that support the effective environmental management of the organization (Adjei-Bamfo, Bempong, Osei, & Kusi-Sarpong 2019). Moreover, green selection can be put into practice by considering job applicants who possessed certification and awards on environment social responsibility for job interviews and employment. It can also be practiced by interviewing video-conferencing, teleconferencing and online tests among other e-recruitment practices (Rawashdeh, 2018). Similarly, directing job applicants to submit their criteria and resumes through the employer's website to eliminate papers and their effect on environmental hazards has been considered as eco-friendly ways of hiring, recruiting and selecting job applicants (Dumont, Shen, & Deng, 2017).

Green Training and Development: This is the extent to which the firm consciously designs the content of training and developmental programs to reflect environmental friendly behaviours aimed at reducing waste, optimizing usage of organizational resources, conserving energy and addressing the source of environmental degradation and pollution (Obaid & Alias, 2015). It includes the continuous education of organizational members about environmental management to have adequate knowledge and awareness about environmental issues and how the operations of the organization threaten or benefits its

immediate environment (Naqvi & Siddiqui, 2019). In addition, it deals with how employees can assist their organizations to protect, control, and prevent identified sources of pollution. Moreover, green training and development are aimed at broadening the employees' knowledge, attitude, and skills needed to help the organization minimize environmental pollution (Masri & Jaaron, 2017). Effective training employees on green practices enhance the capabilities and self-efficacy of employees to engage in green behaviour energy (Chaudhary, 2018). The training usually begins with the organization's HR professionals identifying the training needs of employees in the light of environmental demands (Masri & Jaaron, 2017). The information elicited about environmental training needs can be used to design the content of training and development programs that will guide trainees in imparting the right environmentally problem-solving skills, knowledge and attitude to employees to engage in environmentally friendly best practices (Masri & Jaaron, 2017). Such practices usually take in form of long-distance business travel reduction, recycling of waste products, use of clean energy and frequent use of soft copies rather than hard copies and online workshops to reduce the effect of paper usage on emission (Chaudhary, 2018). Educating and training employees on techniques and how best to conserve energy, dispose of wastes and engage in other green use ecological behaviours, can help in environmental waste management, energy conservation, carbon footprints reduction, which could help the organization achieve a sustainable environment to live (Mishra, 2017).

Green Performance Management and Appraisal: It is the inclusion of environmental issues in employees' job descriptions performance evaluation by rating employees based on how they perform in reduction of carbon emissions, communicating environmental concerns, and generating new initiatives that help the organizations reduce emissions emanating from the firm's operation is responsible for environmental degradation (Pham, Hoang, & Phan, 2019). It also covers the rating of employees based on green skills acquired and pro-environmental behaviours that impact positively on the environment (Fawehinmi, et al., 2020). Such behaviours have been referred to as green behaviour, which can be directed to promote green task job descriptions or outside the green task job description by proactively taking initiative that goes beyond prescribed task to educate, influence and motivate other individuals to engage in environmentally beneficial actions (Dumont, Shen & Deng, 2017). The green behaviours usually evaluate and rewarded in the course of green performance appraisal are those direct to sustaining and conserving the environment through reusing, recycling, repurposing and reducing the use of raw materials as well as conservation of energy (Iqbal, *et al.,* 2018). The behaviours also include working sustainably, which is defined as meeting the present employer's needs without harming the environment through the pollution of the ecosystem (Saeed, et al., 2019).

Green Reward and Compensation: This is the practice of rewarding organizational members who are aware and make conscious efforts to reduce the harmful effect of environmental pollution through the application of green behaviours in executing their daily job tasks and assignments (Pham, Tučková, & Phan, 2019). It is the practice of rewarding employees who engage in environment-friendly lifestyles. Such lifestyles can take in form of frequent and efficient utilization of resources (Pham, Tučková, & Phan, 2019). This includes switching off electrical appliances at the close of the day's activities, making use of the refuse bin and printing on both sides of sheets of paper. Green reward and compensation include designing reward system to incorporate green travel benefits and green tax to those employees making use of less polluting cars and making a conscious effort to recycle and eliminate operations that are generating toxic waste that is environment harmful (Yusoff, Nejati, Kee & Amran, 2018). The green reward can take in form of monetary (green travel benefits, green tax) and non-monastery (green recognition) rewards (Chaudhary, 2019). The green monetary rewards can be in form of financial compensation such as salary increments, paid vacations, bonuses, special discounts on certain items purchased for engaging in green behaviours (Tang, et al., 2018). The non-monetary rewards usually take

the form of wide publicity, public praise, and appreciation of green efforts by top management as well as special recognition, awards and promotions for those employees encouraging and upholding green behaviour (Rawashdeh, 2018). The practice of rewarding green behaviour toward environmental sustainable performance can encourage employees to be green-conscious even outside their workplace. It can condition the meta-cognitive of employees to develop a habit of recycling, saving energy and using less polluting vehicles, energy, and appliances (Saeed, et al*.,* 2019). This is especially when the organization extend the rewards to employees' household equipment and transportation (Obeidat, Al Bakri, & Elbanna, 2018).

2.2. Green Human Resource Practices and Environmental Performance of Firms

The link between HRM practices and voluntary green behaviours and task behaviours was examined by Chaudhary (2019). Results indicate that the HRM practices examined influenced significantly voluntary green behaviours and task behaviours of organizational participants in India. Chaudhary (2019) further demonstrated that employees have higher intent in pursuing a career in an organization adopting green HRM practices and policies using hierarchical regression. This intent is especially stronger when the organization is attractive and employees have a personal environmental orientation. In a separate study, Chaudhary (2018) revealed that there is a significant relationship between green HRM practices and the job pursuit intention of prospective applicants and this is influenced by organizational prestige and not gender.

Yusoff, et al. (2018) revealed that except for green performance appraisal other dimensions of green HRM practice (green training and development, green compensation, green recruitment, and selection) are positively related to environmental performance. Using data that was elicited from 327 respondents in the health sector in Jordan, Rawashdeh (2018) showed that while green recruitment and selection strongly and significantly influence environmental performance, green training and development, green reward and compensation are not significantly related to environmental performance. Owino and Kwasira (2016) subjected data collected from 163 employees to regression analysis and showed that green performance management and green occupation health and safety significantly influence environmental sustainability. They however revealed that green training and development does not have a significant influence on environmental sustainability.

Dumont, Shen, and Deng (2017) examined the link between green HRM and green behaviour at the workplace and found a positive relationship between both variables. The findings of the study empirically establish a strong positive link between green HRM and in-role employee behaviour. Yong and Mohd-Yusoff (2016) investigated green HRM practices using data from 87 professionals in Malaysia and showed that there is a significant relationship between strategic positioner HRM and green HRM practice. Specifically, the results of the study showed that strategic positioner HRM has a significant influence on green selection, green reward and green performance. A study by Ahmad and Umrani (2019) revealed that the link between ethical leadership style and job satisfaction is mediated by Green HRM and psychological safety. Pham and Paillé (2019) discovered that expectation of favourable treatment and perceived organizational green reputation/prestige mediate the link between green recruitment-selection practices and attractiveness of the origination to job seekers. Iqbal et al., (2018) examined the influence of employees' green behaviours on environmental sustainability in the banking industry. Using regression to test data from 332 employees in the banking industry in developing countries, Iqbal et al., (2018) established that employee's green behaviours significantly influence environmental sustainability, thus suggesting the need to engage in training programs that will create

awareness and enlighten employees on the need to engage in green behaviour in executing job tasks.

Mishra (2017) examined green HRM practices and challenges in India through data collected from manufacturing organizations. Mishra (2017) found that green HRM practices such as green recruitment, and green performance appraisal encourages pro-environmental behaviours among organizational participants. Moreover, Mishra (2017) observed that management support at the top/corporate/strategic level facilitates green behaviours among employees. Fawehinmi, et al. (2020) ascertained the influence of green HRM on employee green behaviour and how this influence is mediated by environmental knowledge among academics in Malaysia. Using SEM to test data from 425 employees, Fawehinmi, et al. (2020) further established that green HRM practices have a significant impact on green behaviour of employees through the full mediation of environmental knowledge. Naqvi and Siddiqui (2019) examined the influence of green HRM on the job performance of employees. Using SEM to test data collected from 300 employees, Naqvi and Siddiqui (2019) observed that green HRM practices significantly influence the green lifestyle of employees and the job performance of employees.

Zaid, Jaaron, and Bon (2018) employed SEM in testing the data generated from 121 manufacturing firms in Pakistan. and the result of their study showed that green HRM practices have a significant influence on sustainable performance decomposed into financial social and environmental performance. Moreover, they found that green HRM practices influence green supply chain practices, which in turn mediate the influence of green HRM on the sustainable performance of firms. Masri and Jaaron (2017) ascertain that each of the dimensions of green HRM practices investigated has a significant and positive relationship with environmental performance. The results further revealed that green recruitment has the highest impact on environmental performance, while green training commands the least influence on the environmental performance of firms.

Yong, et al. (2019) examined the influence of green intellectual capital, that is green human capital, green relational capital and green structural capital, on green HRM practices using data from SEM to test data from 112 large manufacturing firms in Malaysia. They observed that except for green structural capital, the other two dimensions of green intellectual capital influenced green HRM practices. Saeed, et al. (2019) examined the influence of selected green HRM practices on the pro-environmental behaviour of employees. They also investigated how this influence is mediated by pro-environmental psychological capital. Results indicate that green HRM practices have enhanced employees' pro-environmental behaviour and that environmental psychological capital mediated this link. Similarly, they found that the link between green HRM practices and pro-environmental behaviour is moderated by employees' environmental knowledge.

Nawangsari and Sutawijaya (2019) examined green HRM and ascertain its link with the competitive advantage of SMEs. The result of data collected from 100 employees of SMEs in Jakarta, Indonesia and analyzed using SEM revealed that except for green reward and compensation other dimensions of green HRM practices investigated have a direct and positive relationship with green performance, which in turn influences the competitive advantage of SMEs. Results also showed that green reward and compensation in addition to green performance management and appraisal and green employee retention positively and significantly influence competitive advantage. It was however found that green recruitment and selection and green training and development do not exert significant influence on the competitive advantage of SMEs. The antecedents and consequences of green HRM practices were explored by Obeidat, Al Bakri and Elbanna (2018). The findings of the study showed clearly that management support at the corporate level and internal environmental orientation positively influence green HRM, which in turn has a significant positive impact on environmental performance. Moreover, they established the positive relationship between environmental performance and organizational performance of firms in the oil and gas

sector. Pham, Tučková, and Phan (2019) explore the indirect and interactive effects of GHRM practices (training, reward, and organizational culture) on employee environmental commitment and reported that the three GHRM practices investigated influences employee's commitment to engage in environmentally friendly behaviours. Donohue and Torugsa (2015) examined the influence of Green's HRM on proactive environmental management and firms' financial performance and found that Green HRM mediates the influence of proactive environmental management on financial performance positively.

In Nigeria, Oyedokun (2019) examined the relationship between green human resource management (GHRM) and sustainable competitive edge and found that green recruitment practices, green training and development practices, green compensation structure and green employee relations, all have a positive and significant effect on the sustainable competitive edge. Ogbu Edeh and Okwurume (2019) examined the influence of green HRM practices on organizational sustainability using regression in testing cross-sectional data collected from forty-one managers of deposit money banks in Nigeria. They found that each of the three green HRM practices investigated, that is (green recruitment, green training, and green employee relations, has a positive influence on organizational sustainability.

2.3. Conclusions and Future Research Directions

Based on the review of extant literature, this paper concludes that green human resource practices stimulate the environmentally sustainable performance of firms. A number of antecedents of green human resource practices exists in extant literature and they include green recruitment and selection, green performance appraisal, green compensation and benefits, green training and development, green intellectual capital. Future studies should further examine the link between these antecedents and environmental sustainable performance of firms. While Oyedokun (2019) and Ogbu, Edeh and Okwurume (2019) that investigated the influence of green human resources practices on the sustainable competitive advantage of Dangote conglomerates and Deposit Money Banks (DMBs) in Nigeria respectively, the antecedents and consequences of green human resource practices and it link with environmental sustainable performance of firms. In particular, Oyedokun (2019) and Ogbu, Edeh and Okwurume (2019) failed to explore green HRM practices and environmental performance of oil firms in Nigeria, which accounted for the bulk of environmental pollution in the country in the past decades. Against this backdrop, it is suggested that future studies should empirically examine the influence of green human resource practices on the environmentally sustainable performance of oil firms in Nigeria. Specifically, the link between green human resource practices such as green recruitment and selection, green performance appraisal, green compensation and benefits, and green training and development and the environmentally sustainable performance of oil firms in Nigeria.

References

Adjei-Bamfo, P., Bempong, B., Osei, J., and Kusi-Sarpong S. 2019. Green candidate selection for organizational environmental management. *International Journal of Manpower, 41*(7), pp.1081-1096. htpps:doi.org/10.1108/IJM-10-2019-4080

Ahmad, I., and Umrani, W.A. 2019. The impact of ethical leadership style on job satisfaction: Mediating role of perception of Green HRM and psychological safety. *Leadership & Organization Development Journal*, 40(5), pp.534-547. https:doi.org/10.1108/LODJ-12-2018-0461

Aragão, C., and Jabbour, C. 2017. Green training for sustainable procurement? Insights from the Brazilian public sector. *Industrial and Commercial Training, 49*(1), pp.48-54. https://doi.org/10.1108/ICT-07-2016-0043

Chaudhary, R. 2019. Green human resource management in the Indian automobile industry. *Journal of Global Responsibility, 10*(2), pp.161-175. https://doi.org/10.1108/JGR-12-2018-0084

Chaudhary, R. 2018. Can green human resource management attract young talent? An empirical analysis. *Evidence-based HRM, 6*(3), pp.305-319. https://doi.org/10.1108/EBHRM-11-2017-0058

Dumont, J., Shen, J., and Deng, X. 2017. Effects of green HRM practices on employee workplace green behaviour: The role of psychological green climate and employee green values: Efect of green HRM on employee workplace green behaviour. *Human Resource Management, 56*(4), pp.613-627. https://doi.org/10.1002/hrm.21792

Fawehinmi, O., Yusliza, M., Mohamad, Z., Noor Faezah, J., and Muhammad, Z. 2020. Assessing the green behaviour of academics: The role of green human resource management and environmental knowledge. *International Journal of Manpower*, 41(7), pp.879-900. https:/doi.org/10.1108/IJM-07-2019-0347

Iqbal, Q., Hassan, S., Akhtar, S. and Khan, S. 2018. Employee's green behaviour for environmental sustainability: a case of the banking sector in Pakistan. *World Journal of Science, Technology and Sustainable Development, 15*(2), pp.118-130. https://doi.org/10.1108/WJSTSD-08-2017-0025

Masri, H. A., and Jaaron, A. A. 2017. Assessing green human resources management practices in Palestinian manufacturing context: An empirical study. *Journal of Cleaner Production, 143*, pp. 474-489. https://doi.org/10.1016/j.jclepro.2016.12.087

Mishra, P. 2017. Green human resource management: A framework for sustainable organizational development in an emerging economy. *International Journal of Organizational Analysis, 25*(5), pp.762-788. https://doi.org/10.1108/IJOA-11-2016-1079

Moktadir, M., Dwivedi, A., Ali, S., Paul, S., Kabir, G., and Madaan, J. 2020. Antecedents for greening the workforce: Implications for green human resource management. *International Journal of Manpower, 41*(7), pp.1135-1153. https://doi.org/10.1108/IJM-07-2019-0354

Naqvi, S., and Siddiqui, D. A. 2019. Effect of GHRM practices on work performance: the mediatory role of the green lifestyle. Retrieved on the 12/12/2019 from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3486132. https://doi.org/10.2139/ssrn.3486132

Nawangsari, L., and Sutawijaya, A. 2019. What is linked between the green human resources practice with sustainability business? *International Journal of Engineering and Advanced Technology, 8,* pp.313-321.

Obaid, T. F., and Alias, R. B. 2015. The impact of green recruitment, green training and green learning on the firm performance: conceptual paper. *International Journal of Applied Research, 1*(12), pp.951-953.

Obeidat, S. M., Al Bakri, A. A., and Elbanna, S. 2018. Leveraging "green" human resource practices to enable environmental and organizational performance: Evidence from the Qatari Oil and Gas Industry. *Journal of Business Ethics, 6,* pp.1-18.

Ogbu, O., Edeh, F., and Okwurume, C. N. 2019. Green human resource management and organizational sustainability of Deposit Money Banks in Nigeria. *Journal of Management Sciences, 3*(1), pp.224-235.

Owino, W. A., and Kwasira, J. 2016. Influence of selected green human resource management practices on environmental sustainability at Menengai Oil Refinery Limited Nakuru, Kenya. *Journal of Human Resource Management, 4*(3), pp.19-27. doi:1011648/j.jhrm.20160403.11

Oyedokun, O. O. 2019. Green human resource management practices and its effect on the sustainable competitive edge in the Nigerian manufacturing industry (Dangote) (Doctoral dissertation, Dublin Business School).

Pham, D., and Paillé, P. 2019. Green recruitment and selection: an insight into green patterns. *International Journal of Manpower, 7*(2), pp.42-69. https://doi.org/10.1108/IJM-05-2018-0155

Pham, N. T., Hoang, H. T., and Phan, Q. P. T. 2019. Green human resource management: A comprehensive review and future research agenda. *International Journal of Manpower, 7*(9), pp.21-29.

Pham, N. T., Tučková, Z., and Phan, Q. P. T. 2019. Greening human resource management and employee commitment toward the environment: an interaction model. *Journal of Business Economics and Management, 20*(3), pp.446-465. doi:10.3846/jbem.2019.9659

Rawashdeh, A. 2018. The impact of green human resource management on organizational environmental performance in Jordanian health service organizations. *Management Science Letters, 8*(10), pp.1049-1058. doi:10.5267/j.msl.2018.7.006

Saeed, B. B., Afsar, B., Hafeez, S., Khan, I., Tahir, M., and Afridi, M. A. 2019. Promoting employee's pro-environmental behaviour through green human resource management practices. *Corporate Social Responsibility and Environmental Management, 26*(2), pp.424-438. https://doi.org/10.1002/csr.1694

Tang, G., Chen, Y., Jiang, Y., Paille, P., and Jia, J. 2018. Green human resource management practices: scale development and validity. *Asia Pacific Journal of Human Resources, 56*(1), pp.31-55. doi:10.1111/1744-7941.12147

Yong, J. Y., Yusliza, M. Y., Ramayah, T., and Fawehinmi, O. 2019. Nexus between green intellectual capital and green human resource management. *Journal of Cleaner Production,* 215, pp.364-374.

Yong, J., and Mohd-Yusoff, Y. 2016. Studying the influence of strategic human resource competencies on the adoption of green human resource management practices. *Industrial and Commercial Training, 48*(8), pp. 416-422. https://doi.org/10.1108/ICT-03-2016-0017

Yusoff, Y. M., Nejati, M., Kee, D. M. H., and Amran, A. 2018. Linking green human resource management practices to environmental performance in the hotel industry. *Global Business Review, 6,* pp.66-75. https://doi.org/10.1177/0972150918779294

Zaid, A. A., Jaaron, A. A., and Bon, A. T. 2018. The impact of green human resource management and green supply chain management practices on sustainable performance: An empirical study. *Journal of Cleaner Production, 204,* pp.965-979. https://doi.org/10.1016/j.jclepro.2018.09.062

Bio-note

Okharedia Goodheart AKHIMIEN holds a post-doctoral degree in Business Administration from the Department of Business Administration, University of Benin, Benin City, Nigeria. His areas of interest are global business management, cross cultural management and general management. He has papers published across local, national, and international journals.

Alasa Paul KADIRI is a Lecturer and a First Class Honours graduate of Business Administration of the Department of Business Administration, University of Benin, Benin City, Nigeria. He received his Ph.D. in Business Administration from the Department of Business Administration, University of Benin. His research interests and area of specialization are organizational behavior, deviant workplace behaviour, general management, and strategic management. He is a member of the Nigeria Institute of Management (NIM) as well as an Examiner for the National Open University of Nigeria. His papers have been published in reputable local, national, and international journals.

CLUSTER ANALYSIS OF RISKS AND VULNERABILITIES FOR ENVIRONMENT SUSTAINABLE MANAGEMENT

Ruxandra Bejinaru[*]
Department of Management, Business Administration and Tourism, Faculty of Economics, Administration and Business, "Stefan cel Mare" University of Suceava, Suceava, Romania
ruxandrab@usm.ro

Abstract: *The purpose of this paper is to explore the way scholars have approached the role of concepts like 'risks and vulnerabilities' within the framework of environment sustainable management. We developed this bibliometric exploration on a period of 10 years including papers indexed in Scopus database and used the specialized VOSviewer software. A strong argument for the importance of this investigation is that the concept of risks associated to the environment sustainable management is frequently encountered in research papers but the concept of vulnerabilities approached in the same context has not been the focus of too many studies yet. Considering the basic premises that in any domain, organization, or system, vulnerabilities represent the sources of potential risks thus we should have the capacity to timely identify these and prevent them from becoming real risks. The analyses developed through VOSviewer software reveal several types of conclusions. Findings show that there is a strong interest for publishing papers on subjects like "environment risks", "risk analysis" or "environment sustainability" but very low ratings of papers dealing with "vulnerabilities" in this area which results in a knowledge gap for the field. We shall present in detail the journals' clusters and their focus in the area of environment sustainable management. A major contribution of this paper comes from revealing this knowledge gap in the scientific literature between the concepts of risks and vulnerabilities in the field of environment sustainable management. Another useful contribution might be considered the detailed journals' cluster analysis revealing the most popular topics and their networks. Also, an important outcome is the chronological evolution of publications on the key concepts thus depicting the scholarly trend.*

Keywords: cluster analysis, environment, risk management, sustainable management, sustainability, vulnerabilities.

JEL classification: M21, G32, Q01, Q54.

1. Introduction

This paper seeks to explore how the authors approached the concepts of "risks" and "vulnerabilities" in the current context when it became a necessity to approach environmentally sustainable management. We focused on identifying the connections between the two concepts and the field of sustainable environmental management, similar to the existing connections in general risk theory (Massingham, 2010) as well as in studies focused on climate change (McCarthy et al., 2001). By "vulnerabilities" we mean the weaknesses of some systems in relation to certain external forces that can generate physical, financial, operational or human damage. Vulnerabilities are often the ones that

lead to different reactions of systems to changes in the external environment. In the study of climate change, the concept of vulnerability is described as "the extent to which a system is susceptible or unable to cope with the effects of climate change, including variability and climate extremes" (McCarthy et al., 2001, p. 995). On the other hand, the concept of "risks" means those extreme events that could occur with serious negative consequences on a system. The link between the two dimensions, both in theory and in practice, is that reducing the vulnerability of a system will reduce the likelihood of risk (Tiberius et al., 2020). Even though it is closely interdependent, the relationship between vulnerability and risk is not symmetrical, so "reduced vulnerability always means reduced outcome risk, but reducing outcome risk does not always reduce vulnerability" (Sarawitz, Pielke & Keykhah, 2003, p. 809). The topic of "risks" becomes attractive to researchers, especially during economic or complex crises such as the recent COVID-19 pandemic, and growing interest in the resilience of organizations, which is becoming crucial (Baldwin & Weder di Mauro, 2020; Bratianu & Bejinaru, 2021; Kraus et al., 2020; Sapountzaki, 2012).

Currently there are a multitude of papers in the literature dedicated to sustainable environmental management systems but also an uncertain perspective on the connection between risks and vulnerabilities in research. Thus, a bibliometric analysis with VOSviewer can contribute to the understanding of semantic clusters and publication clusters that scientifically outline the two notions (Van Eck & Waltman, 2010, 2011).

2. Literature review

Until now, risk management has been discussed in various fields, but mainly in the financial, climate, health and social fields. In the recent context, more attention is directed to the field of sustainability risk and thus there is an intensified development of risk management systems in the field of data, information and knowledge management. Nowadays, knowledge risk management is expanding rapidly "providing solutions to problems already known to conventional methods of risk management" (Massingham, 2010, p. 465). In the literature it can be easily seen that the attention of researchers has focused on the potential risk of loss of knowledge being already known the negative effects of this phenomenon at the organizational level, especially in the case of retirement of experienced employees (Durst & Wilhelm, 2013; Durst, Hintereger & Zieba, 2019; Durst & Henschel, 2020; Jennex, 2014). We also identified more precise perspectives on knowledge loss, according to DeLong (2004), who argues that managers lose control of "knowledge retention" in the organization, as opposed to other processes such as knowledge creation, transfer, or management. To this end, managers must act effectively as they may at any time lose the critical skills they are already dependent on (DeLong, 2004, p.8). Here we bring to attention the theory according to which the most effective method of retaining knowledge is the stimulation of intergenerational learning (Bejinaru et al., 2018; Bratianu & Leon, 2015; Bratianu et al., 2011). In a systematic review of the literature, the idea is argued that "knowledge risk refers to the probability of knowledge loss in the processes of identifying, storing or protecting them which can decrease the operational or strategic benefit of a company" (Durst, 2019, p.21). The risks most frequently discussed are: loss of knowledge, forgetting knowledge, outsourcing of knowledge, leakage of knowledge, concealment of knowledge, spill of knowledge, accumulation of knowledge, unlearning and inadequate skills of some employees (Durst & Zieba, 2018). In addition to identifying these risks related to the internal organizational dimension of work, we should also evaluate the risks that are generated by the external and contextual dimensions, which can represent significant negative effects on employees. It is already obvious that we need to pay close attention to more and more types of knowledge-related risks that may arise during organizational

changes, changes in strategies, or global changes such as the health crisis and the war crisis (Ahmed, Qin & Martinez, 2019; Yu et al., 2020).

The concept of risk is discussed in the literature in many areas with considerable practical implications. Through this paper we set out to draw attention to a new "buzzword", namely "vulnerabilities". Advanced research in the field of risk management could benefit from the perspective of substantiating this theory because the source of risk is in fact a vulnerability of the system, organization or processes. Early identification of vulnerabilities and their reduction or even elimination will bring important and beneficial results in the continuous and unpredictable fight against risks. The notion of vulnerability has not been as intensely and advanced studied as the notion of risk. However, there is a solid argument for which vulnerabilities should be studied in conjunction with the risks being closely interconnected. In this regard, we can say that vulnerabilities are potential elements of risk triggers (Sapountzaki, 2012; Sarawitz et al., 2003). In this sense, we bring to the fore the comprehensive remark of Fuchs et al., (2012), according to which "vulnerability assessment requires an ability to identify and understand the susceptibility of elements exposed to risks and - in a broader sense – of society to these dangers" (p. 1969). Continuous measurement and monitoring of vulnerabilities is essential for strengthening the resilience of sustainability management systems (Belsis & Kokolakis, 2005; Yu et al., 2020).Knowing the vulnerabilities of the knowledge management systems helps in mitigating the potential consequences of knowledge risks and in increasing the organizational knowledge entropy (Bratianu, 2019). The difficulty in working with knowledge vulnerabilities and knowledge risks comes from their nonlinear nature (Bratianu & Vasilache, 2009) which in practice means increased uncertainty.

3. Methodology design
We consider that using this type of analysis with the help of VOSviewer software has the following foundation. Dealing with risks and vulnerabilities is a reality in all areas of life. Moreover, in the field of sustainable environmental management, their forecasting and counteracting is a priority. In this sense, it is useful to analyze the connections that exist in theory and that have a direct relationship with practice. With the help of the bibliometric analysis from VOSviewer it is possible to structure the already existing knowledge in the literature, of the theories that are outlined in this space as well as to formulate specific policies based on the analyzes.

We designed our research, using the specialized software VOSviewer version 1.6.16, into two stages: a) a network analysis based on published papers of the concepts "risks" and "vulnerabilities" to identify the specific way of using the concepts environment management systems; b) a bibliometric cluster analysis integrating the journals' thematic interests (Van Eck & Waltman, 2010, 2011). For the VOSviewer analysis we used SCOPUS as the database, and searching expressions like "vulnerabilities", and "risks" which generated significant results and satisfactory leads for our investigation. We couldn't exclude neither avoid keywords like "risk management", "environment risk management" or "risk management and vulnerabilities". We performed several analyses such that we could capture the links between the semantic clusters of these concepts (Zupic & Cater, 2015). The first search was for "risk management" keyword and obtained a total of 135624 results which we further filtered introducing also "vulnerabilities" keyword. The resulted database is analyzed through network analysis, density map, overlay map, and clusters table in the following sections.

4. Concepts bibliometric analysis
The network analysis in VOSviewer extracts from the total amount of literature and shows the following information: the most frequently used keywords in published papers and also

the links between them which leads to the formation of clusters. Interpreting these thematic clusters can reveal important information for future research in the field.

From figure 1 it can be seen that the 3 clusters, red, green and blue are very well defined and homogeneous which offers a lot of clues and similarities with "organizational risk management". The red cluster highlights risk management in organizations through representative key terms: "enterprise risk management", "corporate governance", "banking risk management", "financial crisis", "credit risk", "hedging" and "value at risk". It is interesting to observe the position of the red item "Value-at-risk", i.e. at the upper limit of the chart but at the greatest distance from the center of the network. This item could symbolize a particular theme, or a sub-theme of the field of risk management, namely risk awareness on "value". In this context, the term value can cover several meanings: financial resources, human resources, natural and environmental resources, innovation and know-how, opportunities and any other aspect considered "valuable" and which becomes vulnerable at some point.

The green cluster highlights the process, methods and strategies of risk analysis in organizations and contains 8 items. Thus, terms such as "risk assessment", "risk analysis", "risk perception", "project management", "supply chain risk management" and "uncertainty" - all reveal the organizations' continuous focus on forecasting, preventing, assessing potential risks coming from the future, from the present context or backfiring from past decisions and actions.

The blue cluster is the smallest, containing only 7 items, namely: "innovation", "insurance", "moral hazard", "supply chain", "covid-19", "resilience" and "supply-chain-management". Rather, they highlight various directions of response - protection - resilience and reconstruction through innovation in the probability of major adverse events. Thus, we consider that this cluster has as its thematic core the strategies of risk management, insurance, innovation and resilience in problematic situations such as the COVID-19 pandemic or the disruption of supply chains (Bratianu & Bejinaru, 2021).
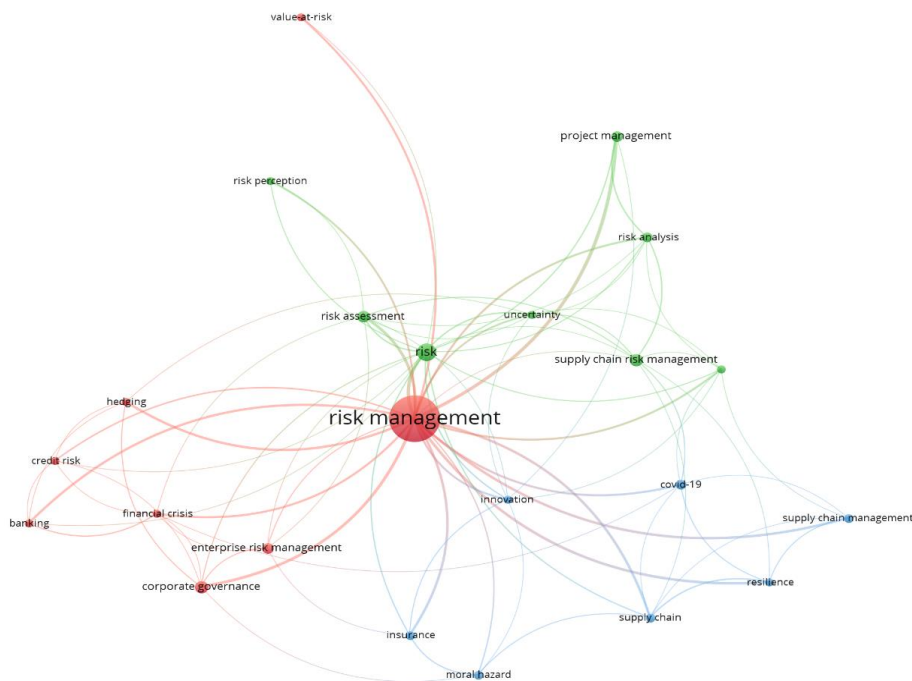
Figure 1. Network analysis of "risk management"
Source: author's elaboration

Another output of the VOSviewer software, the density map, in figure 2, shows which terms are the most invoked by placing them in the center of the figure with larger purple halos, which are the terms connected to each other revealed by the short or large distance between the shapes and also which are the novel items and less approached during the analyzed period as they are located towards the edges and have very light blue color. We consider these bibliometric outputs useful for practice and further research as it brings to light the concentration of existing knowledge and also the knowledge gaps in the field, which in some cases are more important and interesting to explore (Prelipcean & Bejinaru, 2021).
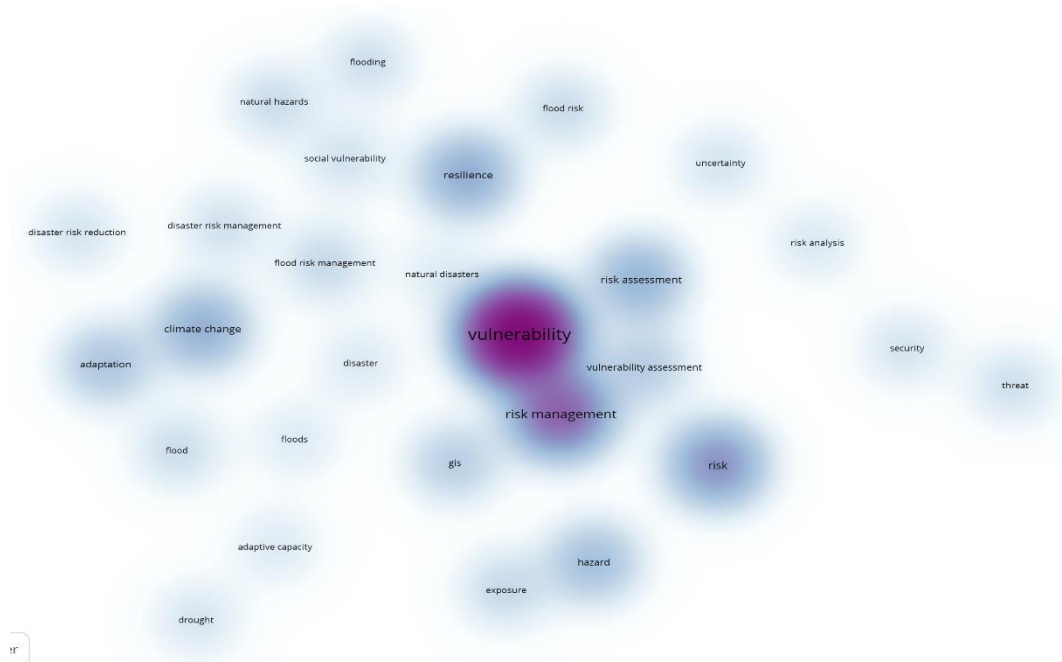
Figure 2. Density map for "vulnerability" during 2010-2020
Source: author's elaboration

5. Journals' cluster analysis based on network visualization

A relevant analysis for an emerging topic, like "vulnerabilities" in the field of risk management, is based on the co-citation criteria. Thus, in this case, clusters are formed according to the co-citation principles (Korte et al., 2021). Journals which include the most cited papers within the SCOPUS database – on the topic of "vulnerabilities" are identified and connected to each other in the network. These clusters are truly relevant for the purpose of identifying which journals focus the most on the topic that we are investigating and which is their connection to other journals (Alayo et al., 2021). Applying this protocol of analysis, we reached to a *Network visualization of journal clusters* like in figure 3. In order to obtain compact clusters, we applied the limitations of 20 (items) for minimum number of documents of a source and 20 (items) for minimum number of citations of a source. We applied such a high threshold in order to obtain only the most relevant journals for our essential keyword, which is "vulnerabilities". The network visualization in figure 3 is really eloquent for this stage of the analysis and the compact clusters are indeed relevant for our debate. In the following we discuss Table 1 with composition of journals clusters.

Throughout the network visualization of journal clusters, in figure 3, we can observe 4 clusters out of which three have many strong connections while the yellow one is quite separated on the right side of the picture. The position of the yellow cluster suggests a different approach of the "vulnerabilities" topic and we shall further discuss its composition. The center of the network is dominated by journals with focus on "hazards", "environment & public health" and "sustainability". This insight is important as it reveals the exact journal titles which incorporate the most research papers on "vulnerabilities". The four clusters are someway associated to different specialized areas according to the journals' aim and scope.
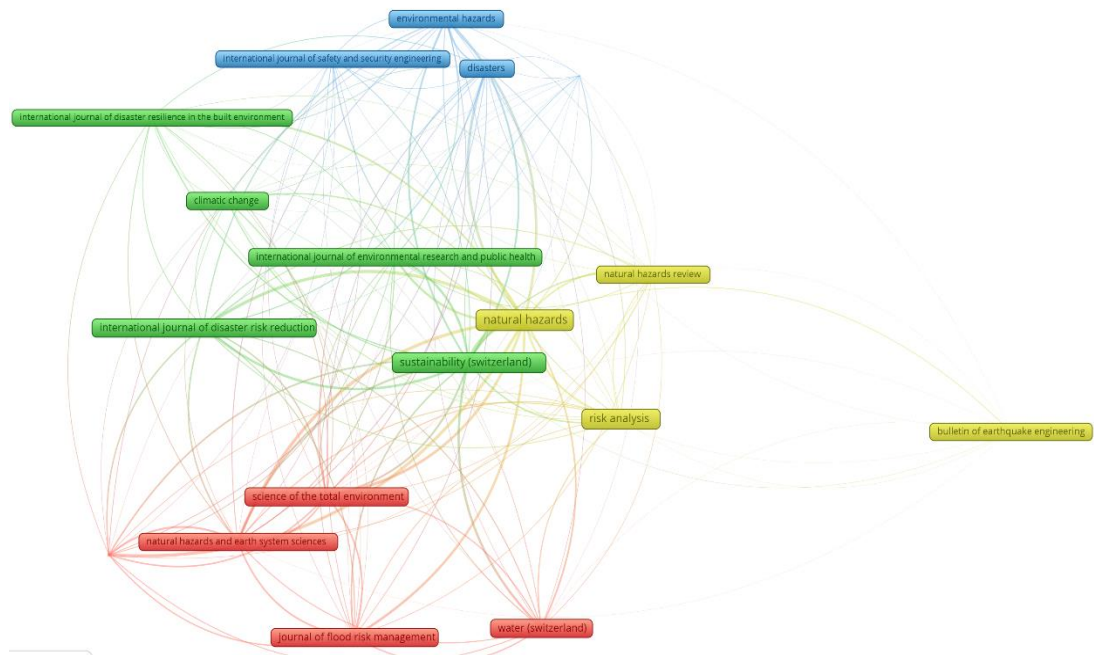
Figure 3. Network visualization of journal clusters
Source: author's research

We built the clusters table 1, according to the items' values for the parameters: total link strength, occurrences and links. We considered as the first cluster, the yellow one, because it comprises the item with the highest total link strength value, namely, the journal Natural Hazards = 3620 and its central position is also relevant in this sense. This journal impact is the greatest as it is its existence of 34 years under the edges of Springer Link Publishing. Natural Hazards journal is dedicated to research papers in the thematic areas of natural hazards, forecast and risk management of catastrophic events, the type of precursors of natural and/or technological hazards. Adding up this knowledge to the cluster visualization we could say that the journal definitely promotes and enables research of "vulnerabilities" and "risk management". Also in cluster 1 we have the journals:

- *Risk Analysis* – is a journal ranked 10th in the ISI Journal Citation Reports, in the category of social sciences - mathematical methods and is a journal of major interest for research in the field of risk analysis;
- *Natural Hazards Review* – is a journal with interdisciplinary approaches that incorporates research on a series of events, processes and effects that occur when natural hazards intersect with the physical, social, economic and engineering dimensions of society in which people interact with and use them.

- *Bulletin of Earthquake Engineering* – it publishes original research, verified in a peer-review system, in the field of earthquake engineering; the coverage includes studies on seismic hazards and risk mitigation methods; presents the mechanisms generating earthquakes and the detailed description of the phenomenon as well as the implementation within the engineering applications; earthquake scenario and vulnerability analysis; earthquake codes and other improvements.

Table 1: Composition of journals clusters

ITEMS	Cluster 1	Link strength	Occurrence	Links
Natural Hazards	Cluster 1 – YELLOW	**3620**	**55**	**117**
Risk Analysis		588	34	17
Natural Hazards Review	**Natural Hazards**	379	15	17
Bulletin of Earthquake Engineering	(3620 total link strength)	34	13	10
ITEMS	Cluster 2	Link strength	Occurrence	Links
Sustainability (Switzerland)		**2360**	**42**	**17**
International Journal of Disaster Risk Reduction	Cluster 2 – GREEN	1125	21	16
International Journal of Environmental Research and Public Health	**Environmental Sustainability**	731	14	17
International Journal of Disaster Resilience in the Built Environment	(2360 total link strength)	390	10	16
Climatic Change		249	13	16
ITEMS	Cluster 3	Link strength	Occurrence	Links
Natural Hazards and Earth System Sciences		**1158**	**14**	**17**
Science of the Total Environment	Cluster 3- RED	991	23	17
Journal of Hydrology	**Natural Hazards & Flood**	946	10	16
Journal of Flood Risk Management	(1158 total link strength)	809	24	16
Water (Switzerland)		668	25	17
ITEMS	Cluster 4	Link strength	Occurrence	Links
Disasters	Cluster 4 – BLUE	**788**	**16**	**17**
Environmental Hazards		788	13	17
International Journal of Safety and Security Engineering	**Environmental Disasters & Security**	220	10	16
Wit Transactions on Ecology and the Environment	(788 total link strength)	104	10	16

Source: author's research

Journals in cluster 2, the green one, reflect predominantly the area of environmental sustainability and climate change. The central journal of this cluster is *Sustainability*

(Switzerland) with a total link strength = 2360. It is interesting to note that this journal has a "cross-disciplinary scholarly, open access approach of environmental, cultural, economic and social sustainability of human beings, which provides an advanced forum for studies related to sustainability and sustainable development". The message of the journal's high scores is that cross-disciplinarity might be a new lead of better research outcomes. The second cluster in green color, comprises four more journals:

- *International Journal of Disaster Risk Reduction*: is a specialized journal for researchers, policymakers and practitioners in various disciplines, such as: earth sciences and related issues; environmental sciences; engineering; urban studies; as well as geography and social sciences.
  Furthermore, it is interesting to notice that among its key topics there are included: *vulnerability analysis and vulnerability trends,* together with multifaceted disasters, emerging risks, resilience against disasters, etc. Thus, also this journal particularly encourages papers that approach risk from a multi-disciplinary perspective.
- *International Journal of Environmental Research and Public Health*: publishes interdisciplinary research in the field of environmental health sciences and public health.
- *International Journal of Disaster Resilience in the Built Environment*: is focused on the development of knowledge and capacity in the strategic and practical fields aimed at reducing the risk of disasters, response and reconstruction in order to reduce the potential impact of natural and anthropogenic hazards. Among the key topics of this journal, we identified: *empowerment of women and vulnerable groups.*
- *Climatic Change*: this journal devotes its full content to the problems of climate change and climate instability from the perspective of describing the causes, the implications and the interactions between them.

According to the above presented, the purpose of these journals is to promote research on environmental and climate change issues from analytical and strategic perspectives in order to foresee, to prevent, and to build resilience regarding the negative phenomena (Bejinaru & Baesu, 2013; Vogel & Güttel, 2013). This approach is based on the acknowledging of several types of system vulnerabilities in this domain and this leads to a major focus on solutions generated throughout research.

Third cluster, the red one, we called *Natural Hazards & Flood*, as it is suggested by the titles and purpose of the comprised journals:

- *Natural Hazards and Earth System Sciences*: embraces a holistic Earth system science approach and targets a numerous community of researchers, practitioners and policy makers who are interested due to their competencies to detect natural hazards, to monitor and evaluate vulnerability and to assess risks in order to design and implement mitigation and adaptation policies, involving economic, social and educational issues.
- *Science of the Total Environment*: it is a journal with a great interdisciplinary openness that includes innovative research which will develop a high impact on the environment, at the interface between atmosphere, lithosphere, hydrosphere, biosphere, and anthroposphere.
- *Journal of Hydrology*: through its works reflects political and management issues with impact on the economic and social environment; the articles are either original research or comprehensive reviews within the subfields of hydrological sciences.
- *Journal of Flood Risk Management*: it is an international platform focused on flood risk and offers the possibility of exchanging information globally.
- *Water (Switzerland)*: the journal scope encompasses several research themes: -Water resources management; -Water governance; -Hydrology & hydraulics; -Flood risk; -Urban water management and other topics in the field.

The main conclusion after analyzing this cluster is that these life domains face continuously multiple risks and vulnerabilities and thus research is intense and the interest is never decreasing but rather increasing due to the emergence of new difficulties that need new solutions and policies.

The fourth cluster, in blue color, that we called *Environmental Disasters & Security* has the lowest representation on the network and the lowest values for all indices. However, it provides certain insights on the security field. Thus, the cluster contains the following journals:

- *Disasters*: it is a well-established, quarterly peer-reviewed journal that provides reports on all aspects of disaster research, policies and management.
- *Environmental Hazards*: highlights the human and political dimensions of hazards in an innovative, interdisciplinary and international research manner.
- *International Journal of Safety and Security Engineering*: includes a range of related areas such as crisis management; security engineering; natural disasters and emergencies; terrorism; IT security; man-made hazards; risk management; control; protection and mitigation issues.
- *Wit Transactions on Ecology and the Environment*: -offers an international platform for debates on the impact of various environmental issues encountered today, taking into account scientific, economic and social aspects; a major theme is how to ensure sustainability.

At this point we may say that the journals are opened to research on risk and vulnerabilities management, as stated by their Scope and Key topics, but scholars have not focused their research towards such an intensive and specialized topic as "vulnerabilities". Presently, this key issue is related more to natural, environmental, health, engineering sciences and only partially to knowledge management field.

It is critical to acknowledge the gap, in the sense that academic editors of prestigious journals, have launched the "vulnerability" paradigm (as demonstrated through their scope) but from the amount of research papers there is little focus on the specific idea of "vulnerability" and it is approached mainly in relation to other traditional issues like: natural hazards, climate change, engineering security or social risks.

Throughout this paper we want to show the gap (in academic literature) and argue the need for a better approach towards "vulnerabilities" in the organizations' management. We define this new paradigm as vital for any organization – just as human life, wildlife or nature's life is vulnerable to disasters and different levels of risk, the same way, the organizational life is vulnerable to many known or unknown risks. In this sense, any organization should have strategies to minimize their vulnerabilities or to block, avoid, or diminish threats.

6. Journals' cluster analysis based on overlay map and chronological evolution

Appreciating that journals' orientation has an important contribution to the evolution of research we extracted from VOSviewer an overlay map for bibliographic coupling by sources during 2010-2020. This overlay map, in figure 4, is relevant as it shows the chronological evolution of the scientific discourse across the fields of natural hazards, risk management, climate change and sustainability.

It is interesting to observe that clusters from 2012, 2014, 2018 are represented by specialized journals as Environmental Hazards (2012), Natural Hazard Review (2014), Journal of Flood Risk Management (2016), while in the latest (2020) the journal Sustainability has the greatest number of publications and more exactly *Avg.pub.year. 2019,52*. Looking at Sustainability journal we could assume that having a multidisciplinary field represents an advantage for scholars interested to publish interdisciplinary and cross-disciplinary research works.

The Overlay map, in figure 4, is showing the academia interest in publishing papers related to the knowledge management risk field but relating also to vulnerabilities – according to the search formula:

(TITLE-ABS-KEY ("risk* management")) AND (vulnerabilit*) AND (LIMIT-TO (EXACTKEYWORD , "Vulnerability") OR LIMIT-TO (EXACTKEYWORD , "Vulnerability Assessments"))

Having already reviewed the journals' scopes and topics we can now understand the authors' motives of choosing a certain publication.
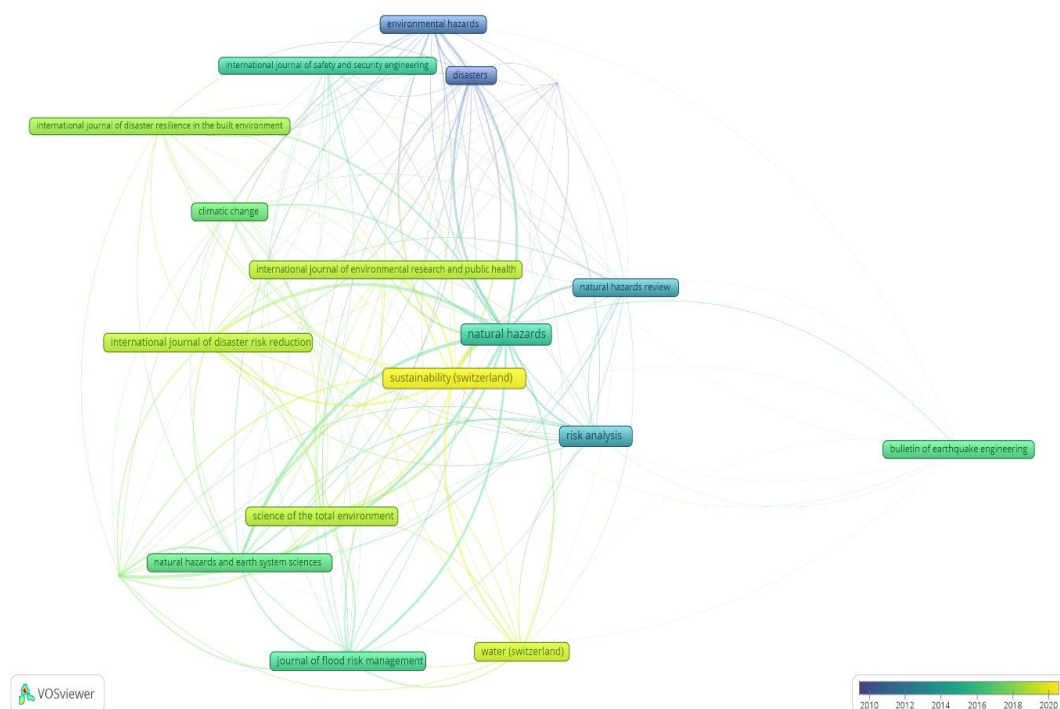
Figure 4. Overlay map of journals 2010-2020 from bibliographic coupling by sources
Source: author's research

The chronological systematization of the journals shows an oscillatory dynamic of the topics on risk management and vulnerabilities. As we can observe from Figure 4 and from Table 2, in 2010 the discussions on these topics started in the research filed of ecology with evidences in a single journal marked only by a dark purple dot at the right upper corner of figure 4, published in the WIT journal. Later in 2012 the interest increased towards journals specialized on major topics like hazards and disasters. In 2014 we can observe into the focus, at the center of the overlay map, two important journals, which are also intensively connected to many other journals on the map.

Starting with 2016, we notice that both the number of journals and the topics addressed have multiplied. Several profile journals have appeared, with topics that have a common basis but are diversified into various other related fields. Thus, we have topic associations between: engineering and earth sciences; risk management and flood; safety and security engineering. In this sense, we can say that the publishing area has expanded through interdisciplinarity but the main purpose has remained risk management.

Later, the year 2018 brings to attention a new range of topics associated with risk management, namely: disaster resilience and public health; and risk reduction and environment. These themes are highlighted through 4 journals that can be seen in the shade of lime green on the overlay map in figure 4.

The year 2020 brings to the fore a dramatic change and a concentration of publications in a multidisciplinary journal, namely Sustainability. We insist that this journal with a central position is proof that it has the largest number of articles including the keywords we researched upon and also has the highest number of links and quotes compared to other journals in the overlay map. Next to it, another important journal stands out, called Water. In conclusion, this diversification and intensification of the publishing activity represents a real support for science and practice through the added value that ultimately benefits the society as a whole.

Table 2: Chronological systematization of journals

YEAR	COLOUR	JOURNAL TITLE	RESEARCH FIELD
2010	Purple	Wit Transactions on Ecology and the Environment	ECOLOGY
2012	Dark Blue	Environmental hazards Disasters	HAZARDS & DISASTERS
2014	Light Blue	Risk Analysis Natural Hazards Review	RISK ANALYSIS & HAZARDS
2016	Green	Bulletin of Earthquake Engineering, Natural hazards and Earth System Sciences, Journal of Flood Risk Management, International Journal of Safety and Security Engineering	RISK MANAGEMENT & FLOOD
2018	Lime Green	International Journal of Disaster Resilience in the Built Environment, International Journal of Environmental Research and Public Health International Journal of Disaster Risk Reduction Science of the Total Environment	DISASTER RESILIENCE & RISK REDUCTION
2020	Yellow	Sustainability (Switzerland) and Water (Switzerland).	SUSTAINABILITY

Source: author's research

7. Conclusions

Through the analyzes carried out with VOSviewer and interpreted, we wanted to bring to light the study and research framework of the most relevant topics regarding the environmental risks and the journals in which these scientific papers appear. The idea of the research started from the association of the two concepts of "risks" and "vulnerabilities" and investigated their development in the profile publications. Thus, with the help of the VOSviewer program, we managed to identify 4 thematic clusters in the field of risk and vulnerability management, especially dedicated to the environment: 1.Natural Hazards, 2.Environmental Sustainability, 3.Natural Hazards & Floods and 4. Environmental Disasters & Security.

Through the same program we also elaborated an overlay map of the publications that highlights a chronology in terms of topics and issues analyzed over the course of 10 years.

The usefulness of such an analysis lies in the fact that we can understand, with concrete results, how the research in the field has evolved, year after year. Moreover, an up-to-date analysis, up to the current year, can facilitate a forecast on emerging topics based on the observation on the map of the latest publications. From the analyzes we can conclude that from 2010, until now, this field has known a significant advance and it has been sequential on various topics, as follows: 2010-ecology; 2012 hazards & disasters; 2014 risk analysis & hazards; 2016 risk management & flood; 2018-disaster resilience & risk reduction; 2020-sustainability. For all these topics we have identified the priority journals.

Our results show that there is an increased interest in publishing papers on topics such as "environment risks", "risk analysis" or "environment sustainability" but very few of these publications bring into question the concept of "vulnerabilities" which leads to the conclusion that there is a lack of knowledge in this area. Through our research we have highlighted the areas of intense risk study such as: - risk management in organizations, with focus on "enterprise risk management", "corporate governance", "banking risk management", "financial crisis"; - analysis of process, methods and strategies of risk in organizations with focus on terms such as "risk assessment", "risk analysis", "risk perception", and "project management"; strategies of response, protection and resilience highlighted by keywords like "innovation", "insurance", "moral hazard", "resilience" and "supply-chain-management".

Moreover, an important result is that of journal clusters as they represent a very important and useful database for both practitioners and researchers in the field. Another result obtained in our research is the chronological evolution of the investigated keywords as it shows the oscillation and evolution over time of publications signaling certain global or regional trends that may or may not be aligned with global or regional contexts.

Across this research we could confirm that although the concept of risk is well represented in the literature on sustainable environmental management, the concept of vulnerability is less analyzed. However, risks are strongly linked to vulnerabilities because, in any system, vulnerabilities are the potential triggers. Vulnerability monitoring is essential in designing resilient security systems for environmentally sustainable management systems. The limitations of the research refer mainly to the selection of a single database from which were extracted the analyzed papers and this could be extended and cumulated with papers extracted from other databases, like WOS, Emerald, Springer. Another important limitation is the accelerated rhythm of publications which induced a relatively short period of validity for the obtained analysis.

Risk management considers operating with intangible organizational resources. Organizations operate in a dynamic economic and social environment, with rapid and unpredictable changes, which generate a high level of uncertainty. This represents a high-risk potential that can generate multiple negative consequences on organizational performance. In order to mitigate possible adverse effects, managers have a responsibility to identify as many of the causes of environmental risks as possible and to develop measures to eliminate or mitigate them. In this context, we can say that the generic concept that defines these causes is that of vulnerability.

What we can conclude from our analysis is that research interests focus more on the concept of risk, such as climate and environmental risk, and on the operations needed to mitigate its negative consequences. In this regard, we propose that an even more effective approach to environmental risks should include the spectrum of vulnerabilities in these systems.

References

Ahmed, F., Qin, Y.J., Martínez, L. 2019. Sustainable Change Management through Employee Readiness: Decision Support System Adoption in Technology-Intensive British E-Businesses. *Sustainability*, 11(11):2998. https://doi.org/10.3390/su11112998.

Alayo, M., Iturralde, T., Maseda, A., Aparicio, G. 2021. Mapping family firm internationalization research: Bibliometric and literature review. *Review of Managerial Science* 15, 1517–1560. https://doi.org/10.1007/s11846-020-00404-1.

Baldwin, R. and Weder di Mauro, B. 2020. *Mitigating the COVID economic crisis: act fast and do whatever it takes*, CEPR Press, London.

Bejinaru, R., Hapenciuc, C.V., Condratov, I. and Stanciu, P. 2018. The university role in developing the human capital for a sustainable bioeconomy. Amfiteatru Economic, 20 (49), pp. 583-598. https://doi.org/10.24818/EA/2018/49/583.

Bejinaru, R. and Baesu, C. 2013. Approaches to organizational change within modern companies. *The USV Annals of Economics and Public Administration,* 13 (1(17)), 127-134. http://annals.seap.usv.ro/index.php/annals/article/viewFile/509/552.

Belsis, P. and Kokolakis, S. 2005. Information systems security from a knowledge management perspective. *Information Management & Computer Security*, 13, (3), pp. 189-202. https://doi.org/10.1108/09685220510602013.

Bratianu, C. 2019. Exploring knowledge entropy in organizations. *Management Dynamics in the Knowledge Economy*, 7 (3), pp. 353-366. https://doi.org/10.25019/MDKE/7.3.05.

Bratianu, C. and Vasilache, S. 2009 Evaluating linear-nonliniar thinking style for knowledge management education. *Management and Marketing*, 4, (3), pp. 3-18. http://www.managementmarketing.ro/pdf/articole/147.pdf.

Bratianu, C., Agapie, A., Orzea, I. and Agoston, S. 2011. Intergenerational learning dynamics in universities. *Electronic Journal of Knowledge Management*, 9, (1), pp. 10-18. https://academic-publishing.org/index.php/ejkm/article/view/916/879.

Bratianu, C. and Bejinaru, R. 2021. COVID-19 induced emergent knowledge strategies, *Knowledge and Process Management*, 28, (1), pp. 11-17. https://doi.org/10.1002/kpm.1656.

Bratianu, C. and Leon, R.D. 2011. Strategies to enhance intergenerational learning and reducing knowledge loss: an empirical study of universities. *VINE Journal of Information and Knowledge Management Systems*, 45, (4), pp. 551-567. https://doi.org/10.1108/VINE-01-2015-0007.

DeLong, D.W. 2004. *Lost knowledge: confronting the threat of an aging workforce*. Oxford University Press, Oxford.

Durst, S. and Henschel, T. 2020. *Knowledge risk management. From theory to praxis*, Springer Nature.

Durst, S. 2019. How far have we come with the study of knowledge risk? *VINE Journal of Information and Knowledge Management Systems*, 49, (1), pp. 21-34. https://doi.org/10.1108/VJIKMS-10-2018-0087.

Durst, S. and Wilhelm, S. 2013. Do you know your knowledge at risk?, *Measuring Business Excellence*, 17, (3), pp. 28-39. https://doi.org/10.1108/MBE-08-2012-0042.

Fuchs, S., Birkmann, J. and Glade, T. 2012. Vulnerability assessment in natural hazards and risk analysis: current approaches and future challenge. *Natural Hazards*, 64, pp. 1969-1975. https://doi.org/10.1007/s11069-012-0352-9.

Jennex, M.E. 2014. A proposed method for assessing knowledge loss risk with departing personnel, *VINE Journal of Information and Knowledge Management Systems*, 44, (2), pp. 185-209. https://doi.org/10.1108/VINE-07-2012-0028.

Korte, A., Tiberius, V., and Brem, A. 2021. Internet of Things (IoT) Technology Research in Business and Management Literature: Results from a Co-Citation Analysis. *Journal of Theoretical and Applied Electronic Commerce Research*, 16, pp.2073–2090. https://doi.org/10.3390/jtaer16060116.

Kraus, S., Li, H., Kang, Q., Westhead, P., and Tiberius, V. 2020. The sharing economy: A bibliometric analysis of the state-of-the-art. *International Journal of Entrepreneurial Behavior & Research*, 26, pp.1769–1786. https://doi.org/10.1108/IJEBR-06-2020-0438.

Massingham, P. 2010. Knowledge risk management: a framework, *Journal of Knowledge Management*, 14, (3), pp. 464-485. https://doi.org/10.1108/13673271011050166.

McCarthy, J.J., Cauziami, D.F., Leary, N.A., Dokken, D.J., and White, K.S. (Eds) 2001. Climate change 2001: impacts, adaptation and vulnerability. *Cambridge University Press, Cambridge*.

Prelipcean, G. and Bejinaru, R. 2021. Academic Leadership Strategies of Entrepreneurial University: A Bibliometric Literature Analysis, *ECMLG 2021 17th European Conference on Management, Leadership and Governance,* 08.11.2021, 361-369.

Sapountzaki, K. 2012. Vulnerability management by means of resilience, *Natural Hazards*, 60, pp. 1267-1285. https://doi.org/10.1007/s11069-011-9908-3.

Sarawitz, D., Pielke, R. and Keykhah, M. 2003. Vulnerability and risk: some thoughts from a political and policy perspective, *Risk Analysis*, 23, (4), pp. 805-810. https://doi.org/10.1111/1539-6924.00357.

Tiberius, V., Siglow, C., and Sendra-García, J. 2020. Scenarios in business and management: The current stock and research opportunities. *Journal of Business Research*, 121, pp.235–242. https://doi.org/10.1016/j.jbusres.2020.08.037.

Van Eck, N.J. and Waltman, L. 2010. Software survey: VOSviewer, a computer program for bibliometric mapping, *Scientometrics*, 84, (2), pp. 523-538. https://doi.org/10.1007/s11192-009-0146-3.

Van Eck, N.J. and Waltman, L. 2011. Text mining and visualization using VOSviewer, *ISSI Newsletter*, 7, (3), pp. 50-54. https://arxiv.org/ftp/arxiv/papers/1109/1109.2058.pdf.

Vogel, R. and Güttel, W.H. 2013. The Dynamic Capability View in Strategic Management: Bibliometric Review. *International Journal of Management Reviews*, 15, pp. 426–446. https://doi.org/10.1111/ijmr.12000.

Yu, H., Bian, Z., Mu, S., Yuan, J. and Chen, F. 2020. Effects of Climate Change on Land Cover Change and Vegetation Dynamics in Xinjiang, China, *International Journal of Environmental Research and Public Health*, 17, (13): 4865. https://doi.org/10.3390/ijerph17134865.

Zupic, I. and Cater, T. 2015. Bibliometric methods in management and organization, *Organizational Research Methods*, 18, (3), pp. 429-472. https://doi.org/10.1177/1094428114562629.

Bionote

Ruxandra Bejinaru, Ph.D., is a lecturer at *"Stefan cel Mare" University of Suceava, Romania*. She holds a PhD in Business Administration from University of Economic Studies in Bucharest. Her scientific interests are in business administration, knowledge dynamics, and intellectual capital. She published a series of papers in the field of knowledge economy both at international conferences and international journals. Recently, her research focuses on university leadership and entrepreneurship. She is a member of International Association of Knowledge Management (IAKM), member of Society for Business Excellence (SBE), board member and reviewer for several international journals indexed in Web of Science & Scopus.

THE MODERATING EFFECT OF INSTITUTIONAL QUALITY ON CORPORATE GOVERNANCE AND FINANCIAL STATEMENT FRAUD IN AN EMERGING ECONOMY

Inu Imoudu Sule, Henry Emife Monye-Emina[*]
Department of Accounting, Faculty of Management Sciences, University of Benin, Benin City, Edo State, Nigeria
suleinu@yahoo.com
henry.monye-emina@uniben.edu.

Abstract: *The study examines corporate governance and financial statement fraud: the moderating role of institutional quality. The study adopted the ex-post facto research design and a sample of 75 non-financial firms listed on the Nigerian Exchange Group (NGX) was used for the study. The binary regression technique was adopted. The results reveal that, board size has shown a positive effect on Financial Statement Fraud. Board independence is negative both in the response and selection equations. Foreign Ownership is negative both in the response and selection equation and significant, and Finally, the study recommends that listed firms may need to cut down their board sizes. Although there is still no consensus on what an optimal board size should be, the study is of the opinion that firms with board sizes above the industry average should look at bringing down their board sizes and also corporate boards should increase their board independence levels by bringing in more non-executive directors. On the part of foreign ownership presence in boards, they are indeed diverse in line with the resource-based view theory and this study confirms their effectiveness in constraining financial statement fraud. Hence it is recommended that companies should seek and maintain some level of foreign ownership presence in their boards.*

Keywords: Financial Statement Fraud; Board Independence; Corporate Governance; Foreign Ownership; Institutional Quality, board size.

JEL Classification: M4, M42, G32.

1. Introduction

Corporate fraud presents a major danger to shareholders, lenders and even to the survival of corporations. Financial statement fraud differs from other frauds in the corporate environment in that, instead of being the victim or perpetrator of fraud, the company is often the instrument of fraud. The Price Water House Coopers (PwC, 2017) crime survey revealed that financial statement fraud remains a serious problem in every country around the world and tops the list of five most common frauds committed globally. Following the fraud scandals in large companies, (Enron, WorldCom, Xerox, Lehman Brothers and AIG) concerns about fraud in general and fraudulent financial reporting in particular has increased (Kaseem and Higson, 2012). The 2018 Report published by the Association of Certified Fraud Examiners (ACFE), estimated the cost of fraud to be around 5% of businesses' annual revenues globally, this might well be translated as $3.7 trillion of economic losses

---

due to fraud. Fraudulent Financial Statements involve the intentional misstatement of an organization's financial results of economic position (Anand. et al., 2015).

Corporate governance has gained significance in attempting to explain the conduct of the board and the consequences it may bring for the incidence of misconduct in financial statements. However, there is a large methodological diversity, and research in this field and still very undecided and far from consensus on the relationship between board characteristics and the possibility of fraud. Chen, Firth, Gao and Rui (2006) concluded that board size is not relevant in deterring fraud, and this is in line with Wardhani, (2015) and Carcello and Nagy (2004). Their study is also consistent with Farber (2005) Italy, Bradbury, Mak and Tan (2006) United Kingdom and Mohd Salleh and Othman (2016) Malaysia. Xie,et al. (2003), on the other hand argued that, bigger board correlate with less risk of fraud for companies in the UK and this is in line with Sharma (2014) for companies in Australia. Regrettably, in virtually all of the studies linking corporate governance and financial statement fraud, none has employed the effect of institutional quality in the relationship between governance and financial statement fraud. Consequently, this study addresses this gap by providing insights into the level of institutional quality, using the World Bank development indicators and how it influences the nexus between governance and financial statement fraud in Nigeria. Institutional Quality (IQ) is deemed an important consideration hinges on Aggarwal, et al., (2009), IQ and Firm-level governance could be substitutes, but also complements in mitigating financial statement fraud. In the case where IQ and firm level governance are substitutes, firms will seek to develop very strong and robust governance framework in environments of weak IQ (Aggarwal, et al., 2009). The level for institutional quality for Nigeria stands at a low point and there is need to examine if there are empirically valid connections between this and the weakness or strength of corporate governance in mitigating financial statement fraud in the Nigerian environment.

2. Literature Review

2.0   Conceptual Review
2.1   Financial Statement Fraud

Financial statement manipulation causes the largest damage at the business level and is directed at distorting the financial reality, gaining such gains or concealing future damages or unfavorable effects. As shown in figure 2.1 below, misstatements in financial statements, which are accounting irregularities, appear across an error-fraud continuum. That means accounting irregularities are part of a continuum from low levels of non-compliance with standards to outright fraudulent financial reporting (Smaili and Labelle 2009). At one end of the spectrum, accounting irregularities are errors caused by unintentional mistakes or errors causing material or immaterial misleading information. Financial restatement is usually the consequence for a listed company that has submitted such a report found to be with errors. At the other end of the spectrum, accounting irregularities are known as fraud when it involves misappropriation of assets, fraudulent reporting and to some extent earnings management and creative accounting. The key factor separating mistake from embezzlement is the accidental or deliberate underlying activity resulting in accounting irregularities. Accidental mistake is the smallest degree of accounting abnormality in financial reports (AICPA, 2011).
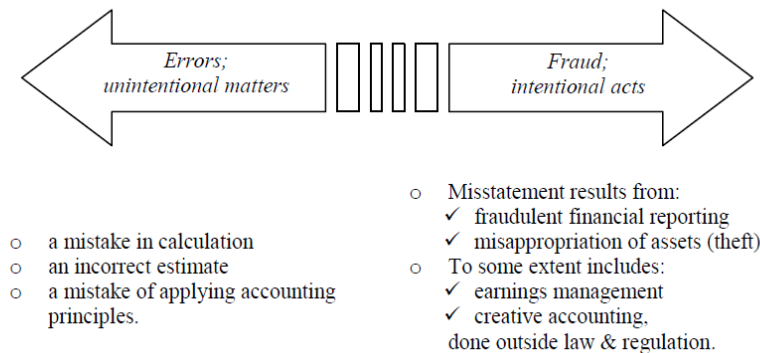
Figure 1: Spectrum of accounting fraud
Source: AICPA (2011)

While there are several definitions and views on fraud in the literature, we align ourselves in this research to the view of unfair or illegal advantage in the conceptualization of fraud. This definition is in line with the definition of AICPA (2007), where fraud and fraudulent financial reporting are seen as fraudulent acts which cause material mistakes. We agree because the focus of the study is on the financial declaration or reporting fraud.

2.1.1 Board Size and financial Statement Fraud
In order for a board to oversee and track management adequately, the number of board members should be seven or eight (Jensen, 199; Lipton and Lorsch, 1992). The lower the number of board directors (less than 10), the more effective the board is in carrying out its role (Yermack, 1996). Compatible with Uzun, Szewczyk and Varma (2004), Carcello and Nagy (2004), Farber (2005), Bradbury, et al., (2006), and Smaili and Labelle (2006), Chen et al. (2006) researched corporate fraud in China and found that board size is not important in deterring fraud. Beasley (1996), however, discovered that a wider board raises the risk of financial statement fraud as it lowers and monitors' efficacy. On the other hand, Xie et al., (2003) found that its correlate with fewer earnings control practices to have a greater board. The findings attribute are clearly mixed. Between seven and nine members are effective according to the Malaysian Code of Corporate Governance (MCCG, 2011), but this depends on the operation and scale of the company. Because there is no known perfect number. Studies of financial statement fraud in three sectors conducted by Beasley, Carcello, Hermanson and Lapides (2000), (technology, health care and financial services). shows that corporate governance differed between fraudulent companies and non-fraudulent companies.

2.1.2 Board Independence and financial Statement Fraud
Mixed findings have been demonstrated from research on the usefulness of independent board members in minimizing earnings management. Larger board help minimize incentives to manage profits, contributing to better oversight (Borokhovich, Parrino and Trapani, 2002; Mulgrew and Forker, 2006). Lipton and Lorsch (2002) observed that greater decision control and oversight of management operations would be supported by a board with a higher number of independent directors. They showed that the disparity between external and independent managers had no effect on research and that non-fraudulent organizations had slightly greater numbers of external managers. Xie et al., (2003: 6) found a negative link between external managers' percentage and earnings management practices that

increases management power over earnings by increasing the external director's percentage. Petra (2005) has found that external and autonomous administrators are improving corporate governance. Beasley (1996) and Saksena (2003) considerably lowered the probability of financial statement manipulation to include more independent board directors. A higher proportion of independent managers will boost compliance oversight and supervision and reduce the risk of organizational theft.

2.1.3 Foreign Ownership and Financial Statement Fraud

The foreign ownership is a type of ownership whereby the companies have certain percentage of foreign investors that invest in the domestic market. Foreign investors are typically mutual funds or other institutional investors (Dahlquist and Robertsson, 2001). Prior research provides evidence that foreign investors can enhance firm value through spreading positive spillover effects (Ferreira and Matos, 2008:3), through reducing firms' cost of capital (Bekaert and Harvey, 2000), through fostering appropriate investment in R and D and through initiating changes in corporate governance practices of local firms (Gillan and Starks, 2003; Ferreira, Massa and Matos, 2010). A number of studies have examined the relationship between foreign ownership and financial statement fraud. For example, Shan, Graves and Hassan (2013) examined corporate governance practices in Malaysia, where the increasing incidence of fraud suggests a lack of adequate corporate governance systems in Malaysian. Using an unbalanced data set comprising 200 companies representing a total of 579 firm-year observations, the study examines the effects of internal corporate governance mechanisms on the occurrence of fraud. Specifically, it looks at the of effects ownership structure on the occurrence of fraud in Malaysian from 2007 to 2009. The findings indicate that foreign ownership revealed a negative correlation with the occurrence of fraud. The study though provided no justification for the observed relationship.

2.1.4 The Mediating Effect of Institutional Quality

The relationship that exists between Corporate Governance and Institutional quality and the implications that this may have on financial fraud in developing economies is still topical. Shleifer and Wolfenzon, 2002; Wu, Johan and Rui, (2009) has provided evidence that IQ can assist in shaping the CG methods internally in related firms. The findings of Aggarwal, et al., (2009) are supported by Dx.doidge, Karolyi and Stulz (2007) who studied the role of country characteristics in firm-level governance. To do this, they regress several important country characteristics on different CG indices for a huge sample of firms. One of these characteristics is the shareholder protection. Shareholder protection has relationship with Firm-level CG that is significant and positive and this is some indication of complementarity between country-level Investor protection and firm-level Governance quality

In contrast, Chen et al. (2006) is in the line with La Porta, et al., (1999) and Wu, et al., (2009) who examined the relationship between property right protection, and the board structure in China. They opined that weak property right protection positively relates with the number of independent directors on the board. With a rise in the need for monitoring management and strategic advice in weak institutional environments, more board members are required (Chen, et al., 2006: 11).and concluded that property right protection and CG are substitutes, which contradict the study that provide a complementary relationship (Aggarwal, et al., (2009). Scholars like Lang, Lins and Miller (2004) are also of the view that, the relationship between IQ and the CG is substitutionary and that the effectiveness of the board is stronger in an environments with weak IQ compared to those with strong IQ. Clearly, if the complimentary effect of IQ on CG clashes with the substitute effect of IQ on CG, then there may not be any difference regarding how effective boards are comparing strong and weak IQ environments.

2.2 Review of Prior Studies

The association between the ownership structures and the financial reporting fraud of listed firms for the period 2005-2013 was investigated by Aziz. et al., (2017). For the analysis, a sample of 853 findings from 2005 to 2013 have been used. During the year of accounting errors, they gathered ownership structure and financial data for sample firms, compared them to those of control companies and analyzed it in a logistic regression. Findings from the study revealed that financial statement fraud is negatively and significantly associated with foreign ownership. A key issue with a number of studies using accounting errors as a fraud indicator is that the studies often fail to provide clear-cut baselines for what types of accounting errors will be classified as fraudulent. This approach may indeed be considered as slightly far-reaching as it tends to be quite too generalistic.

Daphne, William and Yuehua (2018) posit that foreign governance play important roles in transition economies because they are complementary to the institutional conditions. Conducting a bivariate probit analysis of a matched sample of corporate financial fraud cases in China, the study finds that strategic alliances, business group affiliation, non-tradable state shares and foreign ownership can deter corporate financial fraud. Conyon and Leong (2016) investigated the relation between compensation and corporate fraud in China. They document a significantly negative correlation between compensation and corporate fraud using data on publicly traded firms between 2005 and 2010. They also find that executive compensation is lower in firms that commit more severe frauds. Panel data fixed effects and propensity score methods were used to demonstrate these effects.

2.3. Review of Theories
2.3.1. The Fraud-Triangle Theory

The fraud-triangle theory attributes fraud to three elements: pressure, opportunity and rationalization (Mui and Mailley, 2015). The initial version of fraud triangle is referred to by Cressey (1953) who attributed embezzlement behavior to three factors: pressure to commit an embezzlement, an opportunity, and a rationalization or attitude to justify the embezzlement (Daigle, Hayes and Morris, 2014). The fraud-triangle theory asserted that fraud occurs when a perpetrator has an incentive/pressure to commit a fraud; exploits an opportunity of weak internal controls with a low risk of being caught; and be able to justify the fraud behavior (Mui and Mailley, 2015). Fraud triangle is a helpful tool to explain how accountants exploit their positions to deceive their clients, misappropriated fund, and committed fraud under perceived pressure, and exploited opportunity (Dellaportas, 2012). Although many factors account for fraud motivation and rationalization, fraud opportunity factor is complex and multidimensional. That is because other factors may limit the fraud opportunity. For example, weak internal controls, capacity, knowledge and skill of offender can trigger opportunity for fraud. However, other factors such moral, ethical, legal, and social controls can limit this opportunity.

3.0 Methodology

The "ex post facto" research design was adopted in this study and the population of the study consists of all non-financial companies quoted on the Nigerian Exchange Group (NXG) as at December 31, 2020, and there were 75 quoted non-financial companies in the Nigerian stock exchange classification (NXG, 2020). The data were collected from the annual reports for the financial years 2011-2020, and the study employ the logistic regression for data analysis process, model specify below.

The functional and econometric equations depicting the relationship between corporate governance and financial statement fraud likelihood using the Beneish M-score is presented below:

P_{jt} (FSF= Beneish M-score) = 1/ (1+ e^{-z})   (i)

= 1/{1+exp [CoGv]}

P_{jt} (FSF= Beneish M-score) = 1/{1+exp [-β_0 + β_1BDS + β_2 BDIND + β_3FOWN + μ_{it}]} (ii)

Introducing the moderating effect of institutional quality have;

P_{jt} (FSF= Beneish M-score) = 1/{1+exp [-β_0 + β_1BDS*INSQUA + β_2 BDIND*INSQUA + β_3 FOWN*INSQUA + μ_{it}]}   (iii)

3.1. Operationalisation of Variables

Variable	Definition	Measurement	Source
FSFD	Financial Statement Fraud Likelihood	**Beneish M-score** The formula for computing the score is specified below: M-Score = −4.84 + 0.92 × DSRI + 0.528 × GMI + 0.404 × AQI + 0.892 × SGI + 0.115 × DEPI −0.172 × SGAI + 4.679 × TATA − 0.327 × LVGI ----- (1) Where: DSRI= Days Sales in Receivables Index, GMI= Gross Margin Index (GMI), AQI= Asset Quality Index, SGI= Sales Growth Index, DEPI= Depreciation Index, SGAI= Sales General and Administrative Expenses Index, LVGI= Leverage Index and TATA= Total Accruals to Total Assets. If M-Score is less than -2.22, the company is unlikely to be engaged in fraud If M-Score is greater than -2.22, the company is likely to be engaged in fraud	Beneish (1999)
BDS	Board size	The ratio of non-executive directors on the board.	Agrawal and Chadha, (2017).
BDIND	Board Independence	The female to male ratio on the board	Agrawal, and Chadha, (2017)
FOWN	Foreign Ownership	Annual World development indicators from heritage index	World Bank (2019)
INSTQUA	Institutional Quality	Measured as % of ownership controlled by management entities	Wardhani, (2015).

Source: Researcher's compilation (2021)

4. Presentation of Result

The descriptive statistics from Annex no. 1 shows a disaggregation of the data into fraud likely firms and unlikely firms based on the beneish M-score. The BM-score mean and standard deviations for fraud unlikely sample are as shown above. The data revealed that the BSRI mean for the fraud likely is higher than that of the fraud unlikely sample and this implies that fraud likely firms tend to have higher sales debtor values and the volatility of BSRI as indicated by the variance is higher for fraud likely firms than for fraud unlikely firms suggesting further that fraud likely firms tend to exhibit more volatility of sales data over the business cycle. The data revealed that the BGMI mean for the fraud likely sample is also higher than that of the fraud unlikely sample and is even more volatile than that for fraud unlikely firms. Normally, A BGMI value greater than one (1) indicates that margins have deteriorated. This signals poor prospects and might lead to financial statement fraud and as observed the fraud likely sample indeed show BGMI of greater than one and hence the propensity for financial statement fraud is higher for such firms

The mean for Beneish Other Asset Index (BAQI) is also higher in the fraud likely sample than in the fraud unlikely sample. Asset Quality is the ratio of non-current assets other than plan, property, and equipment as a proportion of total assets and normally, AQI greater than one (1) indicates that a firm has potentially increased its involvement in cost deferral. The mean for Beneish Sales growth Index (BSGI) is higher and for fraud likely sample group than for the fraud unlikely sample. Growth does not imply manipulation, but growth firms are more likely to commit fraud because their financial position and capital needs put pressure on managers to achieve earnings targets. In addition, controls and reporting tend to lag behind operations in periods of high growth. Any perception of decelerating growth can significantly impact the value of the stock and be very costly to manage. The mean for Beneish Depreciation Index (BDPI) for fraud likely sample group and for the fraud unlikely sample implies that BDPI is higher for the fraud likely sample than for the unlikely sample. The mean for Beneish Leverage Index (BLEI) for fraud likely sample group and for the fraud unlikely sample in the result. This values do not show strong difference in way fraud likely and unlikely firms handle leverage. Finally, the Beneish Expenses Index (BEXI) for the financial statement fraud likely sample and for the unlikely sample are as shown above.

Table 2: Descriptive Statistics for Governance and Institutional Quality Data

	Mean	Max	Min	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Prob
BDS	9.0055	19	4	2.67113	0.7544	3.663737	82.29645	0.00
BDIND	65.948	94.44	0	17.1408	-1.1407	5.25611	311.8675	0.00
FOROWN	0.6152	112.03	0	0.24137	1.3516	8.378238	1097.564	0.00
INSQUA	32.449	37.44	26.92	3.62430	0.0090	1.497822	68.36424	0.00

Source: Researchers Compilation

The descriptive statistics for the independent variables in this study is presented in table two (2) and as observed, BDS has a mean of nine with maximum and minimum values respectively. BDIND has a mean value which indicates that on the average corporates boards in the sample have 65% of non-executive directors with maximum and minimum values of 94% and 0% respectively. The average FOWN stood at 0.62% with maximum and minimum values of 12% and 0% respectively. The mean for institutional quality index stood at 32.5% which is even below average and suggests that there is still much to be done to improve institutional quality in Nigeria.

Table 3: Pearson Correlation Statistics

	BM-Score	BDS	BDIND	BGD	FOROWN	INSQUA
BM-Score	1					
P-value						
BDS	0.05207	1				
P-value	0.1625					
BDIND	-0.0435	0.1363	1			
P-value	0.2435	0.0002				
FOWN	0.053	0.0305	-0.1001	0.0516	1	
P-value	0.1526	0.4129	0.0071	0.1659		
INSQUA	0.050	-0.007	-0.0328	-0.17	-0.0387	1
P-value	0.179	0.8516	0.3798	0.00	0.2999	

Source: Researchers compilation (2021).

Table 3 shows the correlation statistic for the variables and the focus for the study is the BM-score and the independent variables. The results reveals that BM-score is positively correlated with BDS though not significant, FOWN though not significant and INSQUA though not significant. BDIND is not significant.

Table 4. Beneish M-score Model Regression Result

	Beneish M-score				
	Logistic regression			Zero-inflated Probit Regression	
	Baseline estimates	Marginal effect dy/dx	Odd ratios		
C	0.0398** (0.0431) {0.003}			-7.0348 (4.1892) {0.093}	4.5052 (845.5) {0.996}
BDS	0.9999 (0.0302) {0.999}	0.9999 (0.0302) {0.999}	1.5142 (0.4393) {0.153}	-0.7695 (0.0721) {0.286}	0.24868 (0.17534) {0.156}
BDIND	1.0039 (0.0048) {0.410}	1.0039 (0.0048) {0.410}	1.0624 (0.0485) {0.185}	0.05241 (0.0325) {0.107}	0.0364 (0.0274) {0.185}
FOWN	1.0030 (0.3323) {0.993}	0.1238 (0.0589) {0.036}	0.81953 (2.6156) {0.950}	5.1963 (4.039) {0.198}	-0.0805 (1.9105) {0.966}
REQ			1.2305 (0.1703) {0.134}		0.1239 (0.0835) {0.138}
BDS*INSQUA			0.9870 (0.0089) {0.150}		-0.0078 (0.0055) {0.153}
BDIND*INSQUA			0.9982 (0.0014) {0.206}		-0.00107 (0.0009) {0.206}
FOWN*INSQUA			1.00749 (0.098) {0.939}		0.0032 (0.0580) {0.957}
Pseudo R^2	0.0325		0.0325		
Count R^2	0,592		0.611		
Log likelihood	-141.075		-141.075		
LR	9.47		9.47		
Prob > chi2	0.0504		0.0504		

Source: Researchers compilation (2021).   **** Show the of Significance

In this estimation, the Beneish M-score indicator of financial statement fraud is used and looking at the logistic odd ratios in column 4, the logistic estimation reveals that the odd ratio for BDS which indicates that increase in board size will increase the odds of financial statement fraud though this is not significant. The odd ratios for BDIND indicate that the odds of financial statement will decrease with an increase in board independence though the estimates is not significant at 5% with p-values of 0.185. The odd ratio for foreign ownership indicates that increase in foreign ownership will decrease the odds of financial statement fraud though this assertion failed the test for significant.

Introducing the moderating role of institutional quality into the estimation, Institutional quality has odd ratio was not significant on the M-score financial statement fraud indicator and this implies that institutional quality in itself did not show any significant connection with financial statement fraud using the M-score. Board independence on institutional quality was also not significant on the M-score financial statement fraud indicator. This implies also, that no evidence of a significant moderating effect of institutional quality holds in the relationship between BDS and M-score. Foreign ownership on institutional quality was also not significant on the M-score financial statement fraud indicator. This implies also, that no evidence of a significant moderating effect of institutional quality holds in the relationship between foreign ownership and M-score.

To deal with the number of zero counts involved, we follow the approach of Dong et al. (2014) and estimate a multivariate zero inflated probit regression model as an alternative for modeling the M-score which showed the potential of accommodating excess zeros in correlated count data.

Table 5. Beneish M-score Robust Heckman two-Stage Estimation

	Dependent Variable: Beneish M-score			
Variable	1st stage Response equation	2nd stage Selection equation	1st stage Response equation	2nd stage Selection equation
C	-168.407** (80.581) {0.0370}	-0.7006 (0.4556) {0.1246}	-129.262 (97.059) {0.1834}	-0.4445 (97.059) {0.1834}
BDS	3.2801 (3.3675) {0.3304}	0.0173 (0.0160) {0.2799}		
BDIND	0.0234 (0.3239) {0.9424}	0.0009 (0.0024) {0.7232}		
FOWN	30.2032 (33.5860) {0.3688}	0.1775 (0.1719) {0.7359}		
INSQUA	-0.0283 (1.6198) {0.9861}		-1.05947 (1.6144) {0.5119}	-0.01048 (0.01287) {0.4160}
BDS*INSQUA			0.10096 (0.1086) {0.3530}	0.0005 (0.0005) {0.3191}
BDIND*INSQUA			-0.0018 (0.0108) {0.8704}	9.02e-06 (7.63e-05) {0.9059}

FOROWN*INSQUA			0.9787 (1.0710) {0.3611}	0.0057** (0.0053) {0.02781}
Log Likelihood	-1804.6 (0.000)		-1804.051 (0.00)	
Mean of dependent v.	11.832		11.832	
S.E of regression	115.79		115.58	
S.D of dependent V.	144.86		144.86	
Inverse mill ratio (IMR)		0.971 (0.439)		-0.1530 (0.145)
Akaike info criterion	4.920602			4.919057
Schwarz criterion	5.020205			5.018661
Hannan-Quinn criter	4.959005			4.957461

Source: Researchers compilation (2021)
**** Show the of Signicance

The Heckman two stage M-score results are presented and the estimation reveals that both the response and selection estimation results in column three and four respectively reveal that for board size has a positive effect and are both are not significant. Board independence is positive both in the response and selection equations and is not significant. Foreign ownership is positive both in the response and selection equation though not is significant. The moderating coefficients are also presented and the results reveal that institutional quality (INSQUA) is negative both in the response and selection equations though not significant. The result implies that the effect of institutional quality on financial statement fraud is not significant. The coefficient for board size on institutional quality is positive in the response equation and also positive in the selection equation with none showing statistical significance at either 1 or 5%. Hence, there is no significant evidence to support that institutional quality moderates the extent to which BDS influences the likelihood of financial statement fraud. The coefficient for board independence on institutional quality is negative in response equation and positive in the selection equation with none showing statistical significance at either 1 or 5%. Hence, there is no significant evidence to support that institutional quality moderates the extent to which BDIND influences the likelihood of financial statement fraud. The coefficient for foreign ownership on institutional quality is positive but not significant in the response equation and equally positive but significant in the selection equation. Hence, there is some significant evidence to support that institutional quality moderates the extent to which foreign ownership influences the likelihood of financial statement fraud. The Inverse mills ratio (IMR) are all insignificant indicating that there is no longer selection bias in the model.

5. Findings, Conclusion and Recommendation
The study result reveal that board size has a positive effect and significant. Board independence is negative, which implies that increasing the level of board independence will result in a reduction in financial statement fraud. Foreign ownership is negative and significant. Implying that increasing the level of foreign ownership will result in a reduction in financial statement fraud.
Introducing the moderating role of institutional quality, institutional quality has a positive and significant impact on financial statement fraud. Board size on institutional quality show positive though not significant. Board independence on institutional quality has a negative impact on financial statement fraud and significant, which implies that an increase in the number of board independence will reduce financial statement fraud. Foreign ownership on

institutional quality possess a negative and significant effect on financial statement. In order to provide fortification in the business world for susceptible stakeholders there is need to improve corporate monitoring and control.

That corporate boards should increase their board independence levels. That increasing the level of foreign ownership will result in a reduction in financial statement fraud. The incentives for foreign ownership presence in boards are indeed diverse in line with the resource-based view theory and this study confirms their effectiveness in constraining financial statement fraud. Hence it is recommended that companies should seek and maintain some level of foreign ownership presence in their boards. Introducing the moderating role of institutional quality into the estimation, amongst the variables, the study recommends the importance of improving institutional quality in the Nigerian environment. Even in the presence of firm-specific weak governance, strong institutions can also complement and ensure some level of transparency and investor protection.

References

Aggarwal, R., Erel, I., Stulz, R., and Williamson, R. 2009. "Differences in governance practices between U.S. and foreign firms: measurement, causes, and consequences," *Review of Financial Studies*, 2, pp. 3131-3169. https://doi.org/10.2139/ssrn.1001454.

Aggarwal, R., Hu, M., and Yang, J. 2014. Fraud market reaction and role of institutional investors in Chinese listed firms. Center for Financial Markets and Policy. *Social Science Research Network Electronic Journal* 41(5), 33-51. https://doi.org/10.2139/ssrn.2289460.

Agrawal, A., and Chadha, S. 2017. Corporate governance and Accounting scandals. *The Journal of Law and Economics*, *48*(10), pp. 371–406. https://doi.org/10.1086/430808.

AICPA. 2007. Statement on auditing standards No. 53: The auditor's responsibility to detect and report errors and irregularities. New York, NY: AICPA.

AICPA. 2011. Consideration of fraud in a financial statement audit. Available at: https://www.aicpa.org/research/standards/auditattest/downloadabledocuments/au00316.pdf Retrieved 22/10/2021.

Anand, V., Tina Dacin, M., and Murphy, P. R. 2015. The continued need for diversity in fraud research. *Journal of Business Ethics*, *131*(4), pp. 751-755. https://doi.org/10.1007/s10551-014-2494-z.

Aziz, N. F., Mohamed, M., Hasnan, S., Sulaiman, N., and Aziz, R. A. 2017. Ownership structure and financial restatements in Malaysia. *Pertanika Journal of Social Sciences and Humanities, 25*(1),pp. 227-236. Corpus ID: 170060528.

Beasley, M. S. 1996. An empirical analysis of the relation between the board of director composition and financial statement fraud. *The Accounting Review*, *71*(4), pp. 443-465. https://doi.org/0.2469/dig.v27.n2.79.

Beasley, M. S., Carcello, J. V., Hermanson, D. R., and Lapides, P. D. 2006. Fraudulent financial reporting: Consideration of industry traits and corporate governance mechanisms. *Accounting Horizons*, *14*(4), pp. 441-454. https://doi.org/10.2308/acch.2000.14.4.441.

Bekaert, G., and Harvey, C. R. 2000. Foreign speculators and emerging equity markets. *Journal of Finance, 55*(2), pp.565-613. https://doi.org/10.2139/ssrn.61988.

Beneish, M. D. 1999. The detection of earnings manipulation. *Financial Analysts Journal*, *10*(1), pp. 24-36. https://doi.org/10.2469/faj.v55.n5.2296

Bradbury, M., Mak, Y., and Tan, S. 2006. Board characteristics, audit committee characteristics and abnormal accruals. *Pacific Accounting Review*, *18*(2), pp.22-35. https://doi.org/10.1108/01140580610732813.

Carcello, J. V. and Nagy, A. L. 2004. Client size, auditor specialization and fraudulent financial reporting. *Managerial Auditing Journal, 19*(5), pp.631- 651. https://doi.org/10.1108/02686900410537775.

Chen, G., Firth, M., Gao, D. N., and Rui, O. 2006. Ownership structure, corporate governance, and fraud: Evidence From China. *Journal of Corporate Finance, 12*(3), pp. 424-448. https://doi.org/10.1016/j.jcorpfin.2005.09.002.

Conyon, M. J., and He, L. 2016. Executive compensation and corporate fraud in China, *Journal of Business Ethics*, *134*(4), pp. 669-691. https://doi.org/10.2139/ssrn.2292549.

Cressey, D. R. 1953. Other People's Money. Montclair, NJ: Patterson Smith. Retrieved from https://www.pdfdrive.com/other-peoples-money-e43489319.html 23/6/21

Dahlquist, M. and Robertsson, G. 2001. Direct foreign ownership, institutional investors, and firm characteristics. *Journal of Financial Economics, 59*(3), pp. 413-440. https://doi.org/10.1016/S0304-405X(00)00092-1.

Daigle, R. J., Hayes, D. C., and Morris, P. W. 2014. Dr. Phil and Montel help AIS students "Get Real" with the fraud triangle. Journal Of Accounting Education,32(2), pp. 146- 159. https://doi.org/10.1016/j.jaccedu.2014.03.004.

Daphne, W.Y., William, P.W., and Yuehua, X. 2018. Alternative governance and corporate financial fraud in transition Economics: Evidence from China, *Journal of Management*, *45*(2), pp. 100-112. https://dx.doi.org/10.1177/0149206318764296.

Dellaportas, S. 2013. Conversations with inmate accountants: Motivation, opportunity and the fraud triangle. *Accounting Forum, 37*(2), pp. 29– 39. https://doi.org/10.1016/j.accfor.2012.09.003.

Doidge, C., Karolyi, A., and Stulz, R. 2007. Why do countries matter so much for corporate governance? *Journal of Financial Economics, 86*(2), pp.1-39. https://doi.org/10.1016/j.jfineco.2006.09.002.

Farber, D. B. 2005. Restoring trust after fraud: Does corporate governance matter? The Accounting Review,*80*(2),pp.539-561. https://doi.org/10.2308/accr.2005.80.2.539.

Ferreira, M., and Matos, P. 2008. The colors of investors' money: The role of institutional investors around the world. *Journal of Financial Economics, 88*(1), pp.499-513. https://doi.org/10.2139/ssrn.885777.

Ferreira, M., Massa, M., and Matos, P. 2010. Shareholders at the gate? Institutional investors and c border mergers and acquisitions. *Review of Financial Studies, 23*(2), pp. 601–644. https://doi.org/10.2139/ssrn.966107.

Gillan, S. L., and Starks, L. 2003. Corporate governance, corporate ownership, and the role of institutional investors: a global perspective. *Journal of Applied Finance, 13*(1), pp. 4-22. https://doi.org/10.2139/ssrn.439500.

Jensen, M. C. 1993. The modern industrial revolution, exit and the failure of internal control systems. *Journal of Finance, 48*(1), pp. 831-880. https://doi.org/10.2139/ssrn.93988.

Jensen, M. C., and Meckling, W. H. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), pp. 305-360. https://doi.org/10.1002/9780470752135.ch17.

Kaseem, R and Higson, A.W 2012. The new fraud traiangle model. *Journal of emerging trends in economics and management science, 3*(3), pp. 191-195.CorpusID.49574064.Availableat https://www.semanticscholar.org/paper

La Porta R., Lopez-de-Silanes F., and Shleifer, A. 1999. Corporate ownership around the world, *Journal of Finance, 54*(1), pp. 22-43. https://doi.org/10.1111/0022-1082.00115.

Lang, M.H., Lins, K.V., and Miller, D. P. 2004. Concentrated control, analyst following, and valuation: Do analysts matter most when investors are protected least? *Journal of Accounting Research, 42*(3), pp.589-623. https://doi.org/10.1111/j.1475-679X.2004.t01-1-00142.x.

Lipton, M., and Lorsch, J. W. 1992. A Modest Proposal for Improved Corporate Governance .*Business Lawyer, 48*(1), pp. 23-45. Available at https://www.jstor.org/stable/40687360.

Mohd Salleh, S., and Othman, R. 2016. Board of director's attributes as deterrence to corporate fraud. *Procedia Economics and Finance*, *35*(1), pp. 82-91. https://dx.doi.org/10.1016/S2212-5671(16)00012-5.

Mui, G., and Mailley, J. 2015. A tale of two triangles: Comparing the fraud triangle with 11 criminology's crime triangle. *Accounting Research Journal, 28*(1), pp. 45-58. https://dx.doi.org/10.1108/ARJ-10-2014-0092.

Mulgrew, M. and Forker, J. 2006. Independent non-executive directors and earnings management in the UK. *The Irish Accounting Review, 13*(2), pp. 35-62. Avalaible at https://www.researchgate.net/publication/265935849.

Petra, S. T. 2005. Do outside independent directors strengthen corporate boards? *Corporate Governance*, *5*(1), p. 55-64. [15.10.2020] https://dx.doi.org/10.1108/14720700510583476.

Pricewater House Coopers. 2017. Economic crime: People, culture and control. *The 4th biennial global economic crime survey*. Pricewaterhouse Coopers.

Saksena, P. 2003. The relationship between corporate governance and management fraud: An empirical analysis. *Academy of Accounting and Financial Studies Journal*, *7*(3), pp. 21. Available at https://www.researchgate.net/publication/281461117.

Shan, Y. G., Graves, C., and Ali, H. H. 2013. Effect of board composition and ownership characteristics on fraud Evidence from Malaysian listed companies. *South East Asia Research, 17*(1), pp.234-259. https://doi.org/10.5367/sear.2013.0149.

Sharma, V. D., 2014. The association between audit committee multiple-directorships, tenure, and financial misstatements. *Auditing: A Journal of Practice and Theory*, 31(3), pp. 149-175. https://doi.org/10.2308/ajpt-10290.

Sharma, V.D. 2004. Board of director characteristics, institutional ownership, and fraud: Evidence from Australia. Auditing. *A Journal of Practice and Theory*, *23*(2), pp. 105-117. https://doi.org/10.2308/aud.2004.23.2.105.

Shleifer, A., and Wolfenzon, D. 2001. *Investor protection and equity market.* New York University Working Paper. http://dx.doi.org/10.2139/ssrn.244520.

Smaili, N., and Labelle, R. 2009. Preventing and detecting accounting irregularities: the role of corporate governance. http://dx.doi.org/10.2139/ssrn.1324143.

Uzun, H., and Szewczyk, S. H., and Varma, R. 2004. Board composition and corporate fraud. *Financial Analysts Journal, 60*(1), pp. 33-43. https://doi.org/10.2469/faj.v60.n3.2619

Wardhani, R. 2015. *Mekanisme Corporate Governance dalam Perusahaan yang Mengalami Permasalahan Keuangan.* SNA IX Padang. 4(1), pp.1-26. DOI: 10.21002/jaki.2007.05.

World Bank 2002. *Corporate Governance.* Retrieved from www.ssrn.com [20th March, 2021].

Wu, W., Johan, S. A., and Rui, O. M. 2009. *Institutional investors, political connections and incidence of corporate fraud.* (TILEC Discussion Paper). 134(4), pp.1-18. https://doi.org/10.1007/s10551-014-2392-4.

Xie, B., Davidson, W. N. III, and DaDalt, P. J. 2003. Earnings management and corporate governance: The role of the board and the audit committee. *Journal of Corporate Finance*, *9*(1), pp.295-316. https://dx.doi.org/10.1016/S0929-1199(02)00006-8.

Yermack, D. 1996. Higher market valuations of companies with a small board of directors. *Journal of Financial Economics*, *40*(7), pp.185-211. https://dx.doi:10.1016/0304-405x(95)00844-5.

Bio-note

Inu Imoudu Sule is a Senior Staff of the Independent National Electoral Commission, Benin City, Edo State, Nigeria. And also a PhD in Accounting.

Henry Emife Monye-Emina is a PhD in Accounting. He is a Senior Lecturer in the Department of Accounting, University of Benin, Benin City, Edo State, Nigeria.

Annex no. 1. Descriptive Statistics for Beneish M-score Components Data

Fraud likely Sample								
	BMScore	BSRI	BGMI	BAQI	BSGI	BDPI	BLEI	BEXI
Mean	11.85764	13.83873	1.571109	5.199964	1.297394	1.736124	0.999351	1.15178
Std.Dev	145.1684	156.9893	3.84	42.1737	1.170371	6.524474	0.269471	1.164223
Variance	21073.86	24645.66	14.7456	1778.621	1.369769	42.56877	0.072614	1.355415
Kurtosis	216.8616	222.8409	155.4222	186.3528	77.69861	200.7128	7.135059	49.97826
Skew	14.51896	14.79882	11.95152	13.21435	7.855457	13.7818	0.67089	6.501711
Range	2183.772	2376.088	54.4671	612.6704	14.4496	97.1558	2.4112	12.321
Min	-2.1969	0	-0.4978	-1.1299	0.093	0.0319	0.0607	0.000
Max	2181.575	2376.088	53.9693	611.5405	14.5426	97.1877	2.4719	12.321
Fraud Unlikely Sample								
Mean	-4.58085	0.945339	0.723134	-2.35143	1.035259	1.093916	1.086244	1.117275
Std.Dev	25.5351	0.403108	3.293352	62.99066	0.264865	1.100837	0.534452	0.739564
Variance	652.0412	0.162496	10.84617	3967.824	0.070153	1.211842	0.285639	0.546955
Kurtosis	495.2517	3.913955	214.4961	499.7984	8.878323	127.0125	191.3	44.11934
Skew	-22.0605	0.758823	-13.9535	-22.2091	1.319215	9.919706	11.9829	5.745619
Range	575.6745	3.5521	60.6989	1425.58	2.8734	17.8194	10.014	8.8952
Min	-577.876	0	-56.5756	-1419.79	0.1693	0	0.3974	0
Max	-2.2018	3.5521	4.1233	5.792	3.0427	17.8194	10.4114	8.8952
Aggregate Sample								
	MSCO	BSRI	BGMI	BAQI	BSGI	BDPI	BLEI	BEXI
Mean	11.85764	13.83873	1.571109	5.199964	1.297394	1.736124	0.999351	1.15178
Std. Dev	145.1684	156.9893	3.84	42.1737	1.170371	6.524474	0.269471	1.164223
Variance	21073.86	24645.66	14.7456	1778.621	1.369769	42.56877	0.072614	1.355415
Kurtosis	216.8616	222.8409	155.4222	186.3528	77.69861	200.7128	7.135059	49.97826
Skewness	14.51896	14.79882	11.95152	13.21435	7.855457	13.7818	0.67089	6.501711
Range	2183.772	2376.088	54.4671	612.6704	14.4496	97.1558	2.4112	12.321
Min	-2.1969	0	-0.4978	-1.1299	0.093	0.0319	0.0607	0.000
Max	2181.575	2376.088	53.9693	611.5405	14.5426	97.1877	2.4719	12.321

Source: Researchers Compilation

Where: BSRI= Beneish Sales Debtor Index, BGMI= Beneish Gross Profit Index BAQI= Beneish Other Asset Index, BSGI=Beneish Sales growth Index, BDPI=Beneish Depreciation Index, BLEI= Beneish Leverage Index and BEXI= Beneish Expenses Index.

THE IMPORTANCE OF WORKFORCE DIVERSITY MANAGEMENT AS A GLOBAL IMPERATIVE – A SYSTEMATIC REVIEW

Mishlin Nweiser[1], Krisztina Dajnoki[2]*
[1] *Károly Ihrig Doctoral School of Management and Business, University of Debrecen, Hungary, Debrecen*
[2] *Faculty of Economics and Business, University of Debrecen, Hungary, Debrecen*
nweiser.mishlin@econ.unideb.hu
dajnoki.krisztina@econ.unideb.hu

Abstract: *Workforce diversity is an international phenomenon in developed and developing countries. Diversity is an issue that has gotten a lot of attention in many fields; diversity and inclusion have become accepted as a global business topic. Workplace diversity (WPD) is a holistic concept that refers to company employees' disparities. It refers to the complex physical, sociological, and psychological characteristics characterising an individual or group, such as gender, race, sexual orientation, and religious or political beliefs. Academics and practitioners alike are paying increased attention to workforce diversity. This research aims to investigate and provide a conceptual understanding and significance of diversity, especially workplace diversity in different countries; the literature also examines their methodology to investigate workforce diversity. Also, this paper explores literature about the increasing global influence of workforce diversity and its effect on the workplace drawing on previous studies. In addition, because of the benefits to the organisation and the people who work there, diversity in the workplace has become a meaningful and significant topic. The research took a qualitative approach through a comprehensive review of previous literature. The primary purpose of this article is to review the literature on workforce diversity on a global basis.*

Keywords: Diversity, Inclusion, Workforce, WPD content analysis

JEL classification codes: M14, O15

1. Introduction

Globalisation in the twenty-first century necessitates more attention and connection than ever before among people of various cultures, beliefs, and backgrounds. People no longer live and work in a solitary marketplace; they are now members of a global economy that includes competitors from practically every continent. Although several papers have been written on the subject, there has yet to be a comprehensive study of workforce diversity worldwide. As a result, for-profit and charity businesses require diversity to be more creative and adaptable to change (Őnday, 2016). The main goal of this article is to review recent literature on global workforce diversity. Hence, managing enterprise diversity is becoming increasingly crucial as globalisation and migration increase. Globalisation is becoming more prevalent, and technological advancements are making it simpler to be in two locations simultaneously. The term "diversity" encompasses a wide range of concepts comprising many dimensions of diversity such as age, gender, race/ethnicity, educational diversity,

functional, tenure, sexual orientation and physical disability. In addition, with the rise of globalisation, workforce diversity, which refers to more than one characteristic being present among employees, has been an issue of great interest among organisational researchers and managers.

Furthermore, diversity study garners much attention because of socio-cultural changes, economic transformation, globalisation, and individuals migrating to pursue better opportunities (Roberson, 2019).

Workforce diversity is a primary concern for most businesses. Today's businesses must be able to recognise and effectively manage worker diversity. The primary goal of this essay is to review recent literature on global workforce diversity and the methodology used to examine the workforce diversity in different countries and continents around the world, so the paper's objectives are: 1) to explain the importance of diversity. 2) to examine the workforce diversity from a global view. 3) to highlight the evolution of diversity and inclusion. 4) to see how the researchers investigated workforce diversity in different countries and their methodology.

2. Literature review
2.1.The importance of workforce diversity

The state of being unique is referred to as diversity which also refers to being different (Mousa, 2019). Workforce diversity refers to the differences and the similarities among employees in terms of race, cultural background, nationality, religion, age, sexual orientation, physical abilities, disabilities, etc. (Saxena, 2014). However, to boost efficiency and profitability in today's workplace, there is a strong need to focus on workplace diversity. The term "diversity" has been a topic of considerable discussion in numerous fields and dimensions of life all over the world as the relevance and benefits of many aspects of variety become increasingly widely recognised by people all over the world . From a focus on racial differences, in the beginning, the term "diversity" has expanded to cover sex, political affiliation, cultural affinity, gender identity, religion, and sexual orientation (Roberson, Ryan, and Ragins, 2017).

Diversity has become a trending topic in literature (Selmer, Lauring, and Jonasson, 2013; Wolfson, Kraiger, and Finkelstein, 2011). Furthermore, due to the complicated nature of mixed cultures, this task is particularly draining for countries with more significant immigration rates (Neumark and Hellerstein, 2003; Selmer et al., 2013). In 2017, leaders throughout the world were struggling to discover ways to foster tolerance and respect for multiple group identities; from 2016 to now, experts examining non-Christian immigrants and ethnic minority groups, such as the Black Lives Matter movement, have been focusing on this topic (Morris, 2017). Hence, with multinational corporations operating in various countries, it is critical to learn how to utilise in various geographies; diversity and inclusion positively impact the bottom line.

2.2 Workforce diversity in global view

Workforce diversity acknowledges that people differ in several ways, both visible and unseen. According to D'Netto, Shen, and Tang (2011), two important underlying causes that have led to worker diversity, particularly in Western economies, are globalisation and increasing internationalization. On the one hand, the two factors have facilitated cross-border trade and corporate expansion; on the other, they have resulted in a massive influx of international migration.However, not all cross-border migrations are caused by pull causes. Instead, escalating political tensions worldwide, notably in the Middle East, have driven many individuals to seek refuge. In reality, the global refugee crisis has expanded in the last decade. All of these causes have resulted in a shift in socioeconomic patterns and

the demographic makeup of the growing workforce in both developed and developing nations (Hunt et al., 2015).

While previous empirical research has improved our understanding of the effects of diversity management, particularly age diversity management (Bieling, Stock, and Dorozalla, 2015; Boehm et al., 2014; Rabl and Triana, 2014), the vast majority of prior studies were confined to single-country studies, most notably in the United States and Western Europe (Drabe, Hauff, and Richter, 2015; Flynn et al., 2013). Prior research reveals, however, that the design, execution, and success of diversity management varies between nations (Peretz, Levi, and Fried, 2015) due to institutional and cultural differences (Lauring, 2013; Stoermer, Hildisch, and Froese, 2016).

Hence the increasing globalisation and socioeconomic changes have recently resulted in the free movement of labour (Sanghvi, 2019), resulting in a workforce that is more diverse than ever before (Meena and Vanka, 2017; Tamunomiebi and John-Eke, 2020) and practically every organisation is free to form its diverse human capital. These variables have amplified employee interaction (Ramsiary and Raya, 2015) and created new challenges for businesses of all sizes (Shen, Tang and D'Netto, 2014), emphasising the importance of managing a diverse workforce.

3. Methodology

A systematic review of relevant literature has been conducted to assess the different types of diversity. Accordingly we have selected articles related to diversity in the work environment specifically in different countries around the world after we found many articles about diversity in the work environment, but we only select 18 article in this study that are appropriate for the content of this article. In this study, we identified the different operationalisation of diversity dimensions and the most encountered methods of diversity measures considered in research in different countries around the world classified according to the continents of the world, Africa, Asia, Australia, Europe, North America, South America).

Conclusively, this study addressed the existing reasons for the inconsistent results and proposed a future research agenda to overcome the inconsistencies. Search engines on the internet were employed (Web of Science, Springer, Google Scholar) for getting the study research needed for this article. The study's objective is to examine and synthesise existing research and deliver the evidence; thus, a systematic review approach will be applied to this study.

The systematic review methodology is the most reliable and precise method to collect articles, which have severe conditions for search procedure and paper selection to be included in the research, and is typically carried out to assess the nature of existing knowledge and gaps on specific issues on a distinct subject (Mengist, Soromessa and Legese, 2020; Snyder, 2019).

4. Workforce diversity in different continents

Workplace diversity is becoming more widespread as the world continues its globalisation process. Civil rights, affirmative action, reverse discrimination, quotas, racism, and sexism are just a few terms used to describe diversity. "Differences" exist in all human organisations. Gender, culture, race, and social and psychological features vary, but so are people's viewpoints and prejudices.

Nonetheless, workplace diversity is primarily researched in affluent countries (e.g., the United States, Canada, Germany, the United Kingdom, the Netherlands, and Australia), with only a few studies recorded in developing countries (e.g. China and India).

4.1. Workforce diversity history and aspects

Since the end of the Second World War, large-scale immigration has resulted in unparalleled ethnic-racial variety in both the United States and Western Europe. On both sides of the Atlantic, the benefits and problems of diversity are hotly debated, from affirmative action and racial inclusion on college campuses to cultural competency and diversity training in the workplace (Wessendorf, 2014; Alba and Foner, 2015; Warikoo, 2019).

Many countries now pride themselves on being fully diverse; furthermore, according to Harris (2002) and Jonsen et al. (2011), the origins of diversity management discourse can be traced back to equal employment initiatives and affirmative action protocols in the United States in the 1960s. Since this concept has piqued the interest of researchers in fields such as public policy, public administration, sociology, humanities, marketing, and public relations, HRM scholars, on the other hand, have only scratched the surface of this vast research field in the last two decades since noticing demographic shifts in the labour market, growing interest in business ethics, corporate globalisation, and European government policies to include foreigners and immigrants in their labour markets (Ravazzani, 2016).

Furthermore, the prominence and relevance assigned to each or group of these diversity dimensions vary by country, and their impacts can be contradictory. While gender inequality is the oldest and most widely discussed diversity issue in the world, religion is the most important in India and the Middle East, multiculturalism, languages, and religion in Africa, racial equality in the United States and South Africa, and sexual orientation in Western countries and the United States. Indeed, diversity has the capacity to provide various positive effects in a variety of ways.

However, this is contingent on elements such as diversity awareness, sophistication, experience, education, and emotional intelligence, which has been identified as a critical determinant of competency in diversity management (Oyewunmi, 2018).

4.2. Evolution of diversity and inclusion

Kelly and Dobbin (1998); Edelman et al. (2001) conducted two extensive studies that emphasised the rise and decline of the term "diversity." These researches revealed that until 1987, there was very little published about diversity 1987; however, following this, the number of practitioner journal papers referring to the notion skyrocketed, peaked in 1993, and then gradually declined over the next three years. Furthermore, Litvin (1997) conducted a landmark review of organisational behaviour textbooks in the early 1990s, which indicated the tendency to problematise individual differences and then promote diversity management as the solution. This sense of transition led to the genesis of diversity management in the early 1990s. Indeed, by the beginning of 2010, the number of publications on the topic 'inclusion' was more or less on a par with equality. However, the various trends appear to diverge to the extent that interest in equality has stayed constant while interest in inclusion has increased (Oswick and Noon, 2014). According to Biggs (2017), Frederick A. Miller was the first person to recognise the need for diversity and inclusion in the workplace. Since 2010, the diversity conversation has shifted to one of inclusion (Oswick and Noon, 2014).

This transition was necessary because diversity focuses on the characteristics of the employee. In contrast, inclusion focuses on the organisation's characteristics, including organisational culture and climate, in order for different individuals (from various backgrounds) to be entirely accepted and fairly compensated by the organisation. On the other hand, inclusion aims to create an environment that promotes variety.

4.3. Results and Discussion

Workforce diversity is a significant collective research phenomenon encompassing various dimensions, including demographic, cultural, informational, organisational, and cognitive

diversity. Workforce diversity is one of the developing themes that will be investigated in the future since it has the potential to play a significant role in the global market. Our modern world is full of international markets distinguished by various items and handled by a diversified collection of people. Society nowadays is getting multifaceted and diverse as individuals' identities are formed by gender, age, religion, sexual orientation, physical ability, ethnicity, race, educational background, political affiliation, socioeconomic status, skills, functions, culture, nationality, and generational cohorts (Kossek, Lobel, and Brown, 2006; Sabharwal, Levine, and D'Agostino, 2018; Roberson, 2019). Workforce diversity include all of these aspects and characteristics. Hence, workforce diversity has gotten much attention from researchers over the years, and it has become a big part of public administration.

Following are some researchers' methods of examining diversity:

- − Researchers have addressed the mixed findings with the support of different theories in the literature on diversity management
- − Diverse notions have been operationalised in different ways by different researchers. For example, some scholars have calculated the diversity index by combining all factors equally (Riordan and Shore, 1997)
- − Several researchers have looked into various data types and come up with conclusions. Some have used longitudinal data (Klein et al., 2011; Kearney and Gebert, 2009)
- − Researches have hypothesised different shapes of the relationship between diversity and organisational performance. Several scholars have studied the linear relationship.

Table 1 (a;b;c;d) summarises the selected literature for the research analysis and provides a general overview of their methodology in six contients respectively. Table 1a shows the results from the Europe continent.

Table 1a: Summary of the articles examined in Europe continent

Author(s)	Article title	Methodology	Country	Journal
(Podsiadlowski et al., 2013)	Managing a culturally diverse workforce: Diversity perspectives in organisations	Semi-structured, problem-centered interviews	Austria	International Journal of Intercultural Relations,
(Brunow et al., 2019)	Exports of firms and diversity: an empirical assessment for Germany	Survey	Germany	Empirica, Springer Science+Business Media
(Hedija & Němec, 2021)	Gender diversity in leadership and firm performance: evidence from the Czech Republic	Secondary data & regression model	Czech	Journal of Business Economics and Management
(Ozturk and Tatli, 2016)	Gender identity inclusion in the workplace: broadening diversity management research and practice through the case of transgender employees in the UK	Interviews	United Kingdom	The International Journal of Human Resource Management
(Baixauli-Soler et al., 2016)	Executive directors' compensation and monitoring: the influence of gender diversity on Spanish boards	Secondary data	Spain	Journal of Business Economics and Management

Source: Authors editing

Four articles examined in North and South America and Australia, the results are presented in Table 1b.

Table 1b: Summary of the articles examined in North and South America and Australia

Author(s)	Article title	Methodology	Country	Journal
(Cho et al., 2017)	Does diversity matter? exploring workforce diversity, diversity management, and organisational performance in social enterprises	Interviews	United States	Asian social work and policy
(Evans and Suklun, 2017)	Workplace diversity and intercultural communication: A phenomenological study	Interviews	United States	Cogent Business and Management
(Raineri, 2018)	Diversity management in three Latin American countries: an institutional theory perspective	Survey & interviews & Secondary data	Latin America	Academia Revista Latino americana de Administración,
(Davis et al., 2016)	Workplace diversity management in Australia What do managers think and what are organisations doing?	Survey	Australia	Equality, diversity and inclusion

Source: Authors editing

Six articles examined in Asia continent, the most common method was the questionnaire (Table 1c).

Table 1c: Summary of the articles examined in Asia continent

Author(s)	Article title	Methodology	Country	Journal
(Kundu et al., 2017)	Workforce diversity and organisational performance: a study of IT industry in India	Questionnaire Survey	India	The International Journal
(Wen and Oljaca 2020)	The Influence of Inclusion in the Relationship between Workplace Diversity and Organizational Citizenship Behavior	Questionnaire Survey	China	The International Journal of Business Management and Technology
(Won et al., 2021)	Assessing the effects of workforce diversity on project productivity performance for a sustainable workplace in the construction industry	Survey & Interviews	Singapore	Sustainable Development
(Chaudhry et al., 2021)	Do workforce diversity, inclusion practices, & organisational characteristics contribute to organisational innovation? Evidence from the U.A.E	Survey	United Arab Emirates	Cogent Business & Management
(Raewf and Mahmood, 2021)	The Cultural Diversity in the Workplace	Questionnaire	Iraq	Erbil Journal of Humanities and Social Sciences

| (Bakir, 2017) | The Reality of Applying Human Resources Diversity Management and Its Impact on Workers'(Performance, Cooperation, Commitment and Loyalty): A Field Study on the Jordanian Food Industry Companies | Questionnaire | Jordan | International Business Research; |

Source: Authors editing

Table 1d shows the results from Africa continent, three articles examined.

Table 1d: Summary of the articles examined in Africa

Author(s)	Article title	Methodology	Country	Journal
(Mousa, 2021)	Does Gender Diversity Affect Workplace Happiness for Academics? The Role of Diversity Management and Organizational Inclusion	Questionnaire	Egypt	Public Organization Review
(Mazibuko and Govender, 2017)	Exploring workplace diversity and organisational effectiveness: A South African exploratory case study	Questionnaire	South Africa	SA Journal of Human Resource Management
(Akinnusi, 2017)	Fostering Effective Workforce Diversity Management in Nigerian Organisations: The Challenge of Human Resource Management	Literature Review	Nigeria	International Review of Management and Marketing

Source: Authors editing

18 scientific papers published between 2013 and 2021 were identified as a research sample. After conducting a content analysis of the chosen publications included in the research, the sample reveals that most of the methodologies used were survey questionnaires to investigate workforce diversity, from the table, we can see three articles used interviews as a methodology. Additionally, one study (Akinnusi, 2017) used a literature review.

Analyzing the full text of the selected articles enables the authors to identify the diversity dimensions or aspects that the researchers studied, as some of the articles studied the correlation of workforce diversity with firms' performance. In contrast, other articles studied the challenge of human resource challenges in managing diversity, and other articles investigated diversity management.

The concept of diversity has gained popularity in management literature over the last two decades (Wikina, 2011). Thus, this study proposes a requirement to conduct more diversity research in different industries and countries and use different methodologies.

Conclusively, this study suggests that future researchers can explore the importance of diversity practices as a parameter for effectively managing diversity. Hence extending the number of countries would also allow future research to investigate whether diversity management practices generally converge or diverge on a global scale.

5. Limitation and Future Research Prospects

The current research summarises 18 articles from all over the world and highlights several variables associated with workforce diversity. However, the current research is limited because only three database (Web of Science, Springer, and Google Scholar) were used. It is recommended for future research that variables and dimensions identified through the current systematic literature review may be further enriched using more databases and tested using quantitative confirmatory models. The identified research articles can be analysed differently by going through their methodologies and data analysis in detail. There are chances of finding new areas of research.

Also this research has highlighted many dimensions of workforce diversity in different countries that can be studied alone or associated with other variables. Also, this study recommends that future studies continue to investigate the more contextual variables in diversity research with different methodologies to reduce the inconsistency in the findings.

6. Conclusion

This study focused on investigating the literature review on workforce diversity in different countries around the world, and the methodologies of chosen literature were identified. Diversity and inclusion have been the area of interest for practitioners and management consultants who seek to develop and implement diversity and inclusion as global strategies. It was found that most of the methodologies used in the selected articles in this study focus on surveys and questionnaires as primary data and also interviews. Hence we can find that research should use the literature review in studies on workforce diversity as a global imperative in order to gain more precise information about the effective implications of applying workforce diversity around the world, especially since countries around the world have special concerns about different dimensions of diversity according to lots of considerations.

We believe this review will aid future researchers in gaining a comprehensive and holistic understanding of the current state of existing research and future avenues in the field of diversity. Our recommendations will encourage more research in diversity and diversity management fields globally.

Acknowledgement

References

Alba, R. and Foner, N., 2015. Mixed unions and immigrant-group integration in North America and Western Europe. *The ANNALS of the American Academy of Political and Social Science*, *662*(1), pp.38-56. . https://doi.org/10.1177%2F0002716215594611.

Akinnusi, D.M., Sonubi, O.O. and Oyewunmi, A.E., 2017. Fostering effective workforce diversity management in Nigerian organizations: The challenge of Human Resource Management. *International Review of Management and Marketing*, *7*(2), pp.108-116. https://dergipark.org.tr/en/download/article-file/367517 [Accessed 10January 2022].

Baixauli-Soler, J.S., Lucas-Perez, M.E., Martin-Ugedo, J.F., Minguez-Vera, A. and Sanchez-Marin, G., 2016. Executive directors' compensation and monitoring: the influence of gender diversity on Spanish boards. *Journal of Business Economics and Management*, *17*(6), pp.1133-1154. https://doi.org/10.3846/16111699.2014.969767.

Bakir, S.M.A., 2017. The reality of applying human resources diversity management and its

impact on workers'(performance, cooperation, commitment and loyalty): a field study on the Jordanian food industry companies. *International Business Research*, *10*(3), pp.183-192. https://doi.org/10.5539/ibr.v10n3p183.

Bieling, G., Stock, R.M. and Dorozalla, F., 2015. Coping with demographic change in job markets: How age diversity management contributes to organisational performance. *German Journal of Human Resource Management*, *29*(1), pp.5-30. https://doi.org/10.1177%2F239700221502900101.

Biggs, M.E., 2021. Miller, Frederick A.: Leveraging Inclusion as a Breakthrough Organizational Development Strategy. *Springer Books*, pp.1103-1123.

Boehm, S.A., Kunze, F. and Bruch, H., 2014. Spotlight on age-diversity climate: The impact of age-inclusive HR practices on firm-level outcomes. *Personnel Psychology*, *67*(3), pp.667-704. . https://doi.org/10.1111/peps.12047.

Brunow, S., Pestel, L. and Partridge, M., 2019. Exports of firms and diversity: an empirical assessment for Germany. *Empirica*, *46*(1), pp.151-175. https://doi.org/10.1007/s10663-018-9425-7.

Chaudhry, I.S., Paquibut, R.Y. and Tunio, M.N., 2021. Do workforce diversity, inclusion practices, & organizational characteristics contribute to organizational innovation? Evidence from the UAE. *Cogent Business & Management*, *8*(1), p.1947549. https://doi.org/10.1080/23311975.2021.1947549.

Cho, S., Kim, A. and Mor Barak, M.E., 2017. Does diversity matter? Exploring workforce diversity, diversity management, and organizational performance in social enterprises. *Asian Social Work and Policy Review*, 11(3), pp.193-204. https://doi.org/10.1111/aswp.12125.

Davis, P.J., Frolova, Y. and Callahan, W., 2016. Workplace diversity management in Australia: what do managers think and what are organisations doing?. *Equality, Diversity and Inclusion: An International Journal*. https://doi.org/10.1108/EDI-03-2015-0020

D'Netto, B., Shen, J. and Tang, J., 2011. Effects of HR Diversity Management on OCB in China. In *Confucian HRM in Greater China: Theories and Practices* (pp. 104-121). Routledge.

Drabe, D., Hauff, S. and Richter, N.F., 2015. Job satisfaction in aging workforces: an analysis of the USA, Japan and Germany. *The International Journal of Human Resource Management*, *26*(6), pp.783-805. https://doi.org/10.1080/09585192.2014.939101.

Edelman, L.B., Fuller, S.R. and Mara-Drita, I., 2001. Diversity rhetoric and the managerialization of law. *American Journal of Sociology*, *106*(6), pp.1589-1641. https://www.journals.uchicago.edu/doi/abs/10.1086/321303. (Accessed 13 January 2022)

Evans, A. and Suklun, H., 2017. Workplace diversity and intercultural communication: A phenomenological study. *Cogent Business & Management*, *4*(1), p.1408943. https://doi.org/10.1080/23311975.2017.1408943.

Flynn, M., Upchurch, M., Muller-Camen, M. and Schroder, H., 2013. Trade union responses to ageing workforces in the UK and Germany. *Human Relations*, *66*(1), pp.45-64. https://doi.org/10.1177%2F0018726712464801.

Hedija, V. and Němec, D., 2021. Gender diversity in leadership and firm performance: Evidence from the Czech Republic. *Journal of Business Economics and Management*, *22*(1), pp.156-180. https://doi.org/10.3846/jbem.2020.13680.

Harris, P.R., 2002. Eurodiversity – A Business Guide to Managing Differences, *European Business Review*, Vol. 14 No. 4, pp. 304-305. https://doi.org/10.1108/ebr.2002.14.4.304.1

Hunt, V., Layton, D. and Prince, S., 2015. Diversity matters. *McKinsey & Company*, *1*(1), pp.15-29. https://www.insurance.ca.gov/diversity/41-ISDGBD/GBDExternal/upload/McKinseyDivmatters-201501.pdf (Accessed 2 February 2022).

Jonsen, K., Maznevski, M.L. and Schneider, S.C., 2011. Special review article: Diversity and its not so diverse literature: An international perspective. *International Journal of Cross Cultural Management*, *11*(1), pp.35-62. https://doi.org/10.1177%2F1470595811398798.

Kearney, E. and Gebert, D., 2009. Managing diversity and enhancing team outcomes: the promise of transformational leadership. *Journal of Applied Psychology*, *94*(1), p.77. https://psycnet.apa.org/buy/2009-00697-020 (Accessed 27 January 2022).

Kundu, S.C. and Mor, A., 2017. Workforce diversity and organizational performance: a study of IT industry in India. *Employee Relations*. *39*(2), pp.160–183. https://doi.org/10.1108/ER-06-2015-0114.

Klein, K.J., Knight, A.P., Ziegert, J.C., Lim, B.C. and Saltz, J.L., 2011. When team members' values differ: The moderating role of team leadership. *Organizational Behavior and Human Decision Processes*, *114*(1), pp.25-36. https://doi.org/10.1016/j.obhdp.2010.08.004.

Kelly, E. and Dobbin, F., 1998. How affirmative action became diversity management: Employer response to antidiscrimination law, 1961 to 1996. *American Behavioral Scientist*, *41*(7), pp.960-984. https://doi.org/10.1177%2F0002764298041007008.

Kossek, E.E., Lobel, S.A. and Brown, J., 2006. Human resource strategies to manage workforce diversity. *Handbook of workplace diversity*, pp.53-74.

Lauring, J., 2013. International diversity management: Global ideals and local responses. *British Journal of Management*, *24*(2), pp.211-224. https://doi.org/10.1111/j.1467-8551.2011.00798.x.

Litvin, D.R., 1997. The discourse of diversity: From biology to management. *Organization*, *4*(2), pp.187-209. https://doi.org/10.1177%2F135050849742003.

Mazibuko, J.V. and Govender, K.K., 2017. Exploring workplace diversity and organisational effectiveness: A South African exploratory case study. SA *Journal of Human Resource Management*, 15, 10.p. https://doi.org/10.4102/sajhrm.v15i0.865.

Meena, K. and Vanka, S., 2017. Developing an empirical typology of diversity-oriented human resource management practices. *Journal of Management Development*. 36(7), pp.915-929. https://doi.org/10.1108/JMD-02-2016-0031.

Mengist, W., Soromessa, T. and Legese, G., 2020. Method for conducting systematic literature review and meta-analysis for environmental science research*. MethodsX,* 7, p.100777. https://doi.org/10.1016/j.mex.2019.100777.

Morris, A., 2017. W. E. B. Du Bois at the center: from science, civil rights movement, to Black Lives Matter*. The British Journal of Sociology,* 68(1), pp.3-16. https://doi.org/10.1111/1468-4446.12241

Mousa, M., 2019. Organizational inclusion and academics' psychological contract: Can responsible leadership mediate the relationship? *Equality, Diversity and Inclusion: An International Journal*. 39(2), pp.126-144 DOI: 10.1108/EDI-01-2019-0014

Mousa, M., 2021. Does gender diversity affect workplace happiness for academics? The role of diversity management and organizational inclusion. *Public Organization Review*, *21*(1), pp.119-135. https://link.springer.com/article/10.1007/s11115-020-00479-0 [Accessed 6 February 2022]

Neumark, D. and Hellerstein, J.K., 2003. Ethnicity, Language and Workplace: Evidence from a New Matched Employee-Employer Data Set. *Annales d'Economie et de Statistique*, (71), p.19.

Őnday, Ő., 2016. Global workforce diversity management and the challenge of managing diversity: Situation on world and in Turkey. *Global Journal of Human Resource Management*, *4*(1), pp.31-51. http://www.eajournals.org/wp-content/uploads/Global-Workforce-Diversity-Management-and-the-Challenge-of-Managing-Diversity-Situation-on-World-and-in-Turkey.pdf (Accessed 28 January 2022)

Oswick, C. and Noon, M., 2014. Discourses of diversity, equality and inclusion: trenchant formulations or transient fashions? *British Journal of Management*, *25*(1), pp.23-39. https://doi.org/10.1111/j.1467-8551.2012.00830.x

Ozturk, M.B. and Tatli, A., 2016. Gender identity inclusion in the workplace: broadening diversity management research and practice through the case of transgender employees in the UK. *The International Journal of Human Resource Management*, *27*(8), pp.781-802. https://doi.org/10.1080/09585192.2015.1042902

Oyewunmi, A.E., 2018. Normalizing difference: Emotional intelligence and diversity management competence in healthcare managers. *Intangible Capital*, *14*(3), pp.429-444. https://upcommons.upc.edu/handle/2117/123492 [Accessed 7 February 2022]

Peretz, H., Levi, A. and Fried, Y., 2015. Organizational diversity programs across cultures: effects on absenteeism, turnover, performance and innovation. *The International Journal of Human Resource Management*, *26*(6), pp. 875-903. https://doi.org/10.1080/09585192.2014.991344

Podsiadlowski, A., Gröschke, D., Kogler, M., Springer, C. and Van Der Zee, K., 2013. Managing a culturally diverse workforce: Diversity perspectives in organizations. *International Journal of Intercultural Relations*, *37*(2), pp.159-175. https://doi.org/10.1016/j.ijintrel.2012.09.001

Rabl, T. and Triana, M.D.C., 2014. Organizational value for age diversity and potential applicants' organizational attraction: Individual attitudes matter. *Journal of business ethics*, *121*(3),.403-417. https://link.springer.com/article/10.1007/s10551-013-1729-8. (Accessed 29 January 2022).

Raineri, A., 2018. Diversity management in three Latin American countries: an institutional theory perspective. *Academia Revista Latinoamericana de Administración*. 31(2), pp. 426-447.https://doi.org/10.1108/ARLA-08-2016-0220.

Raewf, M.B. and Mahmood, Y.N., 2021. The cultural diversity in the workplace. *Cihan University-Erbil Journal of Humanities and Social Sciences*, *5*(1), pp.1-6. https://doi.org/10.24086/cuejhss.v5n1y2021.pp1-6

Ramsiary, S. and Raya, P., 2015. Diversity Management-A Blend of Literature. *Pacific Business Review International*, *7*(10). pp. 36-45. http://www.pbr.co.in/2015/2015_month/April/6.pdf [Accessesd 7 February 2022].

Ravazzani, S., 2016. Understanding approaches to managing diversity in the workplace: an empirical investigation in Italy. *Equality, Diversity and Inclusion: An International Journal,* 35(2), pp.154-168.

Riordan, C.M. and Shore, L.M., 1997. Demographic diversity and employee attitudes: An empirical examination of relational demography within work units. *Journal of Applied Psychology*, *82*(3), p. 342. https://psycnet.apa.org/doi/10.1037/0021-9010.82.3.342.

Roberson, Q.M., 2019. Diversity in the workplace: A review, synthesis, and future research agenda. *Annual Review of Organizational Psychology and Organizational Behavior*, *6*, pp.69-88. https://doi.org/10.1146/annurev-orgpsych-012218-015243.

Roberson, Q., Ryan, A.M. and Ragins, B.R., 2017. The evolution and future of diversity at work. *Journal of Applied Psychology*, 102(3), p.483. https://psycnet.apa.org/doi/10.1037/apl0000161.

Sabharwal, M., Levine, H. and D'Agostino, M., 2018. A conceptual content analysis of 75 years of diversity research in public administration. *Review of Public Personnel Administration*, *38*(2), pp.248-267. https://doi.org/10.1177%2F0734371X16671368.

Sanghvi, P., 2019. Diversity and strategic human resource management: Literature review. *PEOPLE: International Journal of Social Sciences*, *5*(2), pp.153-161. https://doi.org/10.20319/pijss.2019.52.153161.

Saxena, A., 2014. Workforce diversity: A key to improve productivity. *Procedia economics and finance*, 11, pp.76-85. https://doi.org/10.20319/pijss.2019.52.153161.

Selmer, J., Lauring, J. and Jonasson, C., 2013. Academic staff involvement and openness to diversity in international educational organisations: Is there a moderating effect of shared language? *Higher Education Quarterly*, *67*(2), pp.135-156. https://doi.org/10.1111/hequ.12008.

Shen, J., Tang, N. and D'Netto, B., 2014. A multilevel analysis of the effects of HR diversity management on employee knowledge sharing: the case of Chinese employees. *The International Journal of Human Resource Management*, *25*(12), pp.1720-1738. https://doi.org/10.1080/09585192.2013.859163.

Stoermer, S., Hildisch, A.K. and Froese, F.J., 2016. Culture matters: The influence of national culture on inclusion climate. *Cross Cultural & Strategic Management*. 23(2) pp. 287-305. https://doi.org/10.1108/CCSM-11-2014-0135.

Snyder, H., 2019. Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, *104*, pp.333-339. https://doi.org/10.1016/j.jbusres.2019.07.039.

Tamunomiebi, M.D. and John-Eke, E.C., 2020. Workplace Diversity: Emerging Issues in Contemporary. International *Journal of Academic Research in Business and Social Sciences*, 10(2). pp. 255-265. DOI: 10.6007/IJARBSS/v10-i2/6926.

Warikoo, N.K. 2019. The diversity bargain: and other dilemmas of race, admissions, and meritocracy at elite universities. *International Studies in Sociology of Education*, 27(4), pp. 457–458. https://doi.org/10.1080/09620214.2018.1531230.

Wen, L. and Oljaca, M., 2020. The Influence of Inclusion in the Relationship between Workplace Diversity and Organizational Citizenship Behavior. *The International Journal of Business Management and Technology*, *4*(2), pp.16-27. https://www.theijbmt.com/archive/0932/1508475639.pdf [Accessed 12 February 2022].

Wessendorf, S., 2014. *Commonplace diversity: Social relations in a super-diverse context.* Springer. https://link.springer.com/book/10.1057/9781137033314 [Accessed 15 February 2022].

Wikina, S.B., 2011. *Diversity and inclusion in the information technology industry: relating perceptions and expectations to demographic dimensions.* Doctoral dissertation, Indiana State University. https://www.proquest.com/docview/892728644?pq-origsite=gscholar&fromopenview=true (Accessed 10 February 2022).

Wolfson, N., Kraiger, K. and Finkelstein, L., 2011. The relationship between diversity climate perceptions and workplace attitudes. *The Psychologist-Manager Journal*, *14*(3), 161.p. https://psycnet.apa.org/doi/10.1080/10887156.2011.546170.

Won, D., Hwang, B.G. and Chng, S.J., 2021. Assessing the effects of workforce diversity on project productivity performance for sustainable workplace in the construction industry. *Sustainable Development*, *29*(2), pp.398-418. https://doi.org/10.1002/sd.2155.

Bio-note

Nweiser Mishlin, is a *Ph.D. student* at the Károly Ihrig Doctoral School of *Management and Business, the University of Debrecen* from Debrecen, Hungary. She has a master's degree in MIS, while in her doctoral dissertation, she researches the effect of workforce diversity in the tourist sector. Her professional interests are human resources, international management, leadership competence, and the employment of people with disabilities.

Krisztina Dajnoki, Ph.D. is a habilitated associate *professor and director of the Institute of Management and Organizational Sciences* at the *Faculty of Economics and Bussiness, University of Debrecen* from Debrecen, Hungary. She is a member of the national CoronaHR Research Group and the Leader's Habits International Research Network. Her main research fields include labour market processes, the state and challenges of disabled employee groups, and the study, development and trends in specific functions of human resource management. She published several papers in prestigious international journals.

MICROFINANCE BANKS OPERATIONS AND ECONOMIC DEVELOPMENT IN NIGERIA

Omorose A. Ogiemudia, Igbinovia Lawson Eghosa,' Amenze S. Airhiavbere*
Banking and Finance Department, Faculty of Management Sciences, University of Benin, Benin City, Edo State, Nigeria.
omorose.ogiemudia@mgtsci.uniben.edu
Lawson.igbinovia@uniben.edu
Amenze.airhiavbere@uniben.edu

Abstract: *The paper explored the influence of Microfinance Banks (MBs) on Economic Development (ED) in Nigeria. It was embarked upon against the background that as statutory function, loans should be provided by MBs to spur developmental purposes that will improve long run living standard. Microfinance annual data stream sourced from the country's Central Bank of Nigeria (CBN) statistical report and World Bank national accounts data spanning 1992 to 2020 were analysed with Autoregressive Distributed Lag (ARDL) ECM Model. Following detailed time series estimation, findings reveal that MBs, investment, assets, savings and aggregate credit (loans) significantly influence Nigerian ED during the studied period. Thus, this study concludes that MBs operations in Nigeria is a salient financial inclusion catalyst that significantly spur economic development in Nigeria during the sample studied.*

1. Introduction

The poor citizens are deprived access from the corporate financial circle throughout the world. Exclusion goes from partial to full exclusion in developed and emerging economies. A wide variety of informal financial community based model have been developed by the poor to satisfy their financial demand due to their inability to get corporate financial attention (Irobi, 2008). In the wake of rising unemployment rate, growing population and youth restiveness; providing adequate employment for the citizens has become a hard nut for the government at all tiers to crack and this adversely impair the level of economic development. Hence, the role of microfinance as a reliable mechanism to mitigate unemployment and alleviate poverty, run any choice business that promotes economic growth and development cannot be undermines (Osamwonyi and Obayagbona, 2012).

Financing the needed investments for expansion with domestic savings is a serious challenge confronting emerging economy and this emanates from savings gap problem (Walker, 1999). Researchers like Osamwonyi and Obayagbona (2012), Afolabi (2013), Eigbiremolen and Anaduaka (2014), Makorere (2014), Obadeyi (2015), Murad and Idewele (2017), Ifionu and Olieh (2016), ZahidMahmood et al (2017), Usifoh and Ezeanyeji (2017), Chiazor et al (2018), Werigbelegha and Chukwunulu (2018), Nwude and Anyalechi (2018), Ofeimun, Nwakoby and Izekor (2018) have studied the influence of Microfinance Banks

---

(MBs) operations on economic expansion, house hold welfare and the increase of micro scale business respectively. The findings of these studies were mixed, with some finding positive association, negative relationship and others found no correlation between MBs operations and economic growth. It was clear in the literature that none of these prior studies examined the impact of microfinance operations of total loan (credit), total savings, total investment, microfinance inflation and interest rate on economic development in the case of Nigeria, hence a gap exist in the literature and more research is needed in this regard. As such this study looked at the effect of MBs operations on ED in Nigeria as the macro objective of this study. The specific objectives are to:

1. investigate the influence of microfinance activities of loans, savings, investment and size on ED of Nigeria
2. examine the effect of microfinance interest rate and inflation on ED of Nigeria

Significance of the Study
A study in this area remains germane, as a pioneer or among the scanty studies that used microfinance bank variables of loans, savings, investment, asset and interest rate to examine ED in Nigeria to the best of my knowledge. Furthermore, this study differs from other studies, because it uses Real GDP per as a surrogate for economic development compared to other studies like Ifionu and Olieh (2016) that used Human Development Index (HDI) as economic development proxy; also microfinance Asset and investment variables have not been used by existing model to determine economic development in Nigeria. This study thereby introduced new variable to the debate of the subject matter as a significant contribution to extend the frontier of knowledge. This study finding is of significant benefit to the government, policies maker, regulatory authorities, development partners and other stakeholders concern about national growth and development. For appropriate formulation of policy and prudential guidelines that will strengthen the sector to meaningfully contribute to ED.

2. Literature Review

2.1. Theoretical Literature
Some theories of EG and development have been developed over the years, and these theories are explained as follows;

The Neo-Classical and Endogenous Growth Theory
These theories is hanged on long term commitment capital investment for EG to occur according to economic basic principle. The theory (neoclassical) further emphasize capital investment such as FDI (Foreign Direct Investment) can bridge the gap between productive sector deficient economy which increases EG via marginal productivity of capital increase.

The Solow Development Model
Labour and productivity that is output per worker are the fundamental factors in Solow 1956 growth model. Solow suggested a perpetual function of production that connect sustainable capital and labour input to their output. Equilibrium conditions, variables value is what the theory determines. That is a condition that shows economic balance position and how well the variables under study are stable. That is to know the dynamics of the variables in simple and predictable manner.

2.2. Empirical Literature

Few recent studies considered relevant are reviewed in this study from the plethora studies on microfinance banks and economic development available. Ifionu and Olieh (2016) used the OLS and Ganger Causality method to x-ray the influence of microfinance banks' operations on the Nigeria economic development from 2005-2014. Findings revealed that deposit movement remains a cardinal element in MFBs activities and contributes directly to economic development. Okafor, Ezeaku and Ugwuegbe (2016), Ugochukwu and Onochie (2017) used the Error Correction Model (ECM) and OLS regression analytical technique to investigate the effect of microcredit on poverty reduction in Nigeria from the period 1999 to 2014. Findings showed that microcredit has negative and insignificant influence on poverty alleviation in Nigeria. However, Ugochukwu and Onochie (2017) reported a negative relationship between micro finance lending and poverty alleviation in Nigeria.

Raihan, Osmani and BaquiKhalily (2017) looked at the effect of microfinance on EG in Bangladesh. Their regression estimates pointed out that microfinance contributed around 8.9% -11.9% to the EG in line with labour market assumption. Usifoh and Ezeanyeji (2017) applied ECM techniques to explain the effect of MFBs on poverty alleviation and EG in Nigeria from 1992 to 2016. Findings point out that microfinance asset, loan/advances have a significant effect on poverty alleviation and EG in Nigeria; while deposit liabilities effect on poverty alleviation and economic growth was insignificant; Murad and Idewale (2017) studied the effect of microfinance institution on economic growth in Nigeria from 1992 to 2012. The regression model indicates that microfinance loans and investment have significantly and directly impact EG in Nigeria only in the short run. Only the impact of investment was significant in the long run. OLS approach was applied by Ofeimun et al (2018) to identify the effect of microfinance banks on small businesses' growth in Nigeria covering 1990 – 2015. Findings revealed that micro loan disbursed and micro loan spread significantly and positively influence small business growth in Nigeria. Inflation rate, micro loan spread and micro loan lending rate significantly reduced small business growth in Nigeria.

The nexus between microfinance and rural economic growth in Nigeria was determined by Nwude and Anyalechi (2018) applying the Ordinary Least Square (OLS) regression techniques from 2000 to 2015. Specifically findings show that micro finance banking introduction in Nigeria have not significantly influenced agricultural productivity but had assisted in increasing rural savings habits in Nigeria. Werigbelegha and Chukwunulu (2018) studied microfinance banks' credit and growth of micro scale businesses in Nigeria relationship from 1990-2016. Vector Error Correction Model (VECM) techniques were used and findings show that microfinance bank credit had no short-run equilibrium significant relationship with growth of micro scale businesses in Nigeria. Causality relationship between microfinance credit and the growth of SMEs in Nigeria is not confirmed. Okere, Kingsley, Lawreance and Ozuzu (2018) confirmed the nexus between financial inclusion and economic growth with particular reference of microfinance for the period 1992 to 2013. Using Ordinary Least Square method and employing the Johansen co-integration tests the study showed that the activities of microfinance as one of the financial inclusion strategy significantly contribute to economic growth. While total loans and advances of MFBs significantly contribute to economic growth, total deposits inversely affect economic growth. Amin and Jalal Uddin (2018) ascertained the impact of Grameen Bank loan financing and clients' deposit on EG. Cointegration and Granger's causality test were used to analyze the annual time series data. Findings show that Grameen bank depositing and financing aspect have long run direct impact on EG. Wachukwu et al (2019) explored the impact of microfinance banking on EG in Nigeria. They adopted regression techniques in analyzing the time series data. Findings indicate that microfinance bank credit growth and investment growth had a negative but significant relationship with economic growth. The microfinance bank deposit growth and asset growth were directly and significantly related to real gross

domestic product. Khalaf and Saqfalhait (2019) studied the influence of Micro-Finance firms (MFFs) on Arab countries economic growth 1999 to 2016 using panel data regression for six Arab countries. Significant effect of MFFs on EG of Arab countries was not found in the result. García-Pérez, Fernández-Izquierdo and Muñoz-Torres (2020) studied microfinance institutions (MFIs) as a catalyst for sustainable development by region in Spain. A Kruskal-Wallis H test methodology was used and findings revealed a significant differences as a function of the region, and show that operationalization at the region level of MFIs should be adjusted.

3. Methodology

Research Design, Population, Sample, Type and Sources of Data
This study is based on the Solo developmental model and the endogenous growth theory. The longitudinal survey design is adopted in this study, owing to manifested variables of interest which were gathered for twenty-nine years (1992 to 2020). The choice of the time scope is occasion by data availability with respect to MFBs' variables.

Preliminary Test and Data Analyses Techniques
The preamble test entailed examining the characteristics and summary of the data-set by determining the descriptive statistics of the variables and presents the result in a precise form. This was determined whether or otherwise the variables are normally distributed or not. The stationarity tests were conducted using the Augmented Dickey-Fuller (ADF) tests at 1% level of confidence. Any variable found not stationary at levels (i.e., zero integration) was differenced until it became stationary. Thus, all variables were incorporated at their levels of stationarity after differencing in the same order. This was done as stipulated by the rule of thumb as given by Engle and Granger (1987) to enhance the predictive power of ECM.

Consequently, the ADF modelling procedure is given as follows:

$$\Delta K = \infty + \gamma t + \varphi K_{t-1} + K \sum_{i=1}^{L} = 1\Delta K_{t-1} + \omega_t \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots \dots (1)$$

Where;
K = Variable of choice
∞ = Intercept
Δ = First difference operator
∞i = (for i = 1 and 2) and ΔK I (for i = 1, 2, … P) are constant Parameters
ω_t = Stationary stochastic process (Error Term)
t = represents deterministic trend
L = Number of lagged terms chosen by Akaike information criterion (AIC) to ensure that ε_t is white noise.

All variables are expected to be stationary and integrated of order I(1). When that is achieved, the Engle-Granger two stage co-integration techniques were used to determine the existence of long-run association between the dependent variable (GDP per capita) and the explanatory variables. All co-integrated variables embody error correction elements; hence the Autoregressive Distributed Lag (ARDL) of Error Correction Model (ECM) is used to ascertain the short run dynamics and long run equilibrium using E-views 9.0 software. Furthermore, the test for significance of all parameters was done using probability values in the model result, including some post regression diagnostic test of Durbin Watson and Q Statistic were used to authenticate the result.

Model Specification

This study adapted the model of Ifionu and Olieh (2016). They specified that economic development is a function of microfinance credits/loan, deposits and transfer services. The model was modified to suit the objectives of this study. Hence, the functional form of the model is given as:

$$EDVL = f(MFL, MFS, MFI, MFINT, MFA, INFR) - - - - - - - - - - - - - - - (2)$$

To remove the multi co-linearity problem from the data set, log of the variables were taken except for interest and inflation rate. Hence, the estimated pattern of the model is specified as follows:

$$LEDVL_t = \alpha_0 + \beta_1 LMFL_t + \beta_2 LMFS_t + \beta_3 LMFI_t + \beta_4 MFINT_t + \beta_5 LMFS_t + \beta_6 INFR_t + \varepsilon t ..(3)$$

Hence to ascertain the short run dynamics of microfinance banks variables on economic development, the error correction model (ECM) used as short run equation is specified as:

$$\Delta LEDVL_t = \alpha_0 + \beta_1 \sum_{t=1}^{L} \Delta LEDVL_{t-1} + \beta_2 \sum_{t=1}^{L} \Delta LMFL_{t-1} + \beta_3 \sum_{t=1}^{L} \Delta LMFS_{t-1} + \beta_4 \sum_{t=1}^{L} \Delta LMFI_{t-1}$$

$$+ \beta_5 \sum_{t=1}^{L} \Delta MFINT_{t-1} + \beta_6 \sum_{t=1}^{L} \Delta LMFS_{t-1}$$

$$+ \beta_7 \sum_{t=1}^{L} \Delta INFR_{t-1} + \partial 1 Ecm(-1) + \varepsilon t \ldots\ldots .(4)$$

Equation 4 captures the short run dynamics while 3 captures the long run equilibrium.
Where:
LEDVL = Economic development; LMFL = Log of Microfinance Loan; LMFS = Log of Microfinance savings; $LMFI$ = Log of Microfinance Investment; MFINT = Microfinance interest rate ; LMFA = Log of Microfinance size ; INFR = Inflation rate; α_0 = Constant (Intercept); β1, β2, β3, β4, β5, β6, β7 = Coefficient of each exogenous variable to be estimated. t = respective variables at time t; εt = error term; $Ecm(-1)$ = error correction term
A priori expectations as derived from empirical literature are expressed as:
$\alpha_0 > 0$; β1, β2, β3, β5 and β7 > 0 β4 and β6 < 0

Measurement of Variables
Table 1: Variables Explanation

Variables	Type	Measurement	Sign	Source
EDVL	Dependent Variable	This variable was proxy by log of GDP per capita. Measured as: $GDP\ Per\ Capita = \dfrac{GDP}{Total\ Population}$		CBN Statistical Bulletin
MFL	Explanatory	Proxy by annual total loans and advances extended by microfinance	+	CBN Statistical Bulletin
MFS	""	Proxy by annual total deposits with microfinance banks	+	""
MFI	""	Proxy by annual total investments of microfinance banks.	+	""
MFINT	""	Proxy by lending rate of microfinance	-	""
MFS	""	Proxy by log of Total Asset	+	World Bank national accounts data
INFR	""	Proxy by annual inflation rate	-	""

Source: Researchers Compilation (2020)

4. Data Presentation and Analyses

Descriptive Statistics

Table 2 shows that the entire variables considered in the model skewed to the right from their corresponding mean values indicating a long tail to the right as evidenced in positive values. MFL, MFINT and INFR have a peak distribution that is relative to normal as shown by their corresponding Kurtosis value the is > 3 approximately. EDVL and MFS has a flat property distribution that is relative to normal as shown by their corresponding Kurtosis value that is < 3 approximately. Only MFI and MFA has a Kurtosis value that is equal to 3.0 approximately indicating a relative normal distribution.

The summary properties of of the variables considered in the model are presented below:

Table 2: Summary Statistics

	EDVL	MFL	MFS	MFI	MFINT	MFA	INFR
Mean	1190.862	45637.16	50046.65	2964.843	18.60500	101059.3	19.18308
Median	728.3550	13902.00	27712.80	2662.450	17.96500	44654.07	12.29000
Maximum	3221.680	196195.0	159453.5	8959.800	29.80000	343883.1	72.84000
Minimum	153.6500	135.8000	639.6000	118.4000	13.54000	967.2000	5.380000
Std. Dev.	1045.876	62688.55	53798.95	2822.934	3.208571	115079.0	17.96421
Skewness	0.689331	1.460405	0.809795	0.800383	1.803588	0.915823	1.862874
Kurtosis	1.875994	3.892235	2.293234	2.557682	7.171632	2.527788	5.203610
J-B	3.427775	10.10448	3.382808	2.987937	32.94876	3.876067	20.29852
Prob.	0.180164	0.006395	0.184261	0.224480	0.000000	0.143987	0.000039

Source: Researcher's Computation using E-view (2020)

Furthermore, the table reveals a meaningful difference between lowest and higher integer of the variables considered. The standard deviation for all variables is quite high (except for MFINTR). This means that the only MFINTR variable did not exhibit high deviation from it mean over the years. the proportion of mean to median is approximately one (except for MFL and MFA). The Jarque-Berra probability values for EDVL, MFS, MFI and MFA are not significant at 5% level of confidence, this shows that these variables are normally distributed. Since MFL, MFINT and INFR are not normally distributed, hence stationarity test of all the variables becomes imperative.

Stationarity Test Results

Table 3: Unit root test result

Augumented Dicky-Fuller Test			
Variable	**Adf Stat**	**Order**	**Remark**
Δ**EDVL**	-4.702835*	1(1)	S
Δ**MFL**	-3.647502**	1(1)	S
Δ**MFS**	-6.325979*	1(1)	S
Δ**MFI**	-4.080254**	1(1)	S
Δ**MFINT**	-5.763066*	1(1)	S
Δ**MFA**	-5.348612*	1(1)	S
Δ**INFR**	-4.963567*	1(1)	S
Critical Values			
1%	-4.394309	1(1)	1st Diff
5%	-3.612199	1(1)	1st Diff
10%	-3.243079	1(1)	1st Diff

S = Stationary
*= 1% and ** = 5% Significance Level Respectively.*
Source: Researcher's Estimation using E-view (2020)

The ADF statistic in table 3 indicates that at levels the entire variables were not stationary. This resulted to taking the first difference of the variables. At first difference, all variables were stationary at order one I(1). Therefore, they are fit to be used in further analysis.

Co-integration Estimation
Table 4. Engle and Granger Co-integration test

Variable	Level	Mackinnon Critical Values	Remark
RESID (ECM)	-5.338496*	-3.737853	Stationary
* = 1% level of significance			

Source: Researcher's Estimation using E-view (2020)

It can be deduced from table 4 that there exists a long run convergence between the model variables. Hence, the non-hypothesis of there is no co-integrating association between the variables is rejected at 1% confidence level. Since the calculated value (5.34) is more than 3.74 critical values approximately. Based on this, the parsimonious ECM short run and OLS long run are estimated.

Parsimonious Error Correction Model (ECM) Estimation

Table 5: Short Run Effect

Variables	Short Run Coefficient	T-Statistic	Prob
Dependent Variable: ∆EDVL			
C	-490.5323	-4.859194	0.0398
∆EDVL(-1)	1.217486*	23.21704	0.0019
MFL	0.013851**	3.346546	0.0489
∆MFL(-2)	0.025509**	5.094474	0.0364
MFS	-0.029048**	-5.875038	0.0278
∆MFS(-1)	0.026046	2.484137	0.1310
∆MFS(-2)	-0.041662**	-5.760993	0.0288
∆MFS(-3)	-0.014419***	-3.991047	0.0574
MFI	0.094502**	4.793108	0.0409
∆MFI(-1)	-0.147199**	-6.633149	0.0220
∆MFI(-2)	0.354929*	10.81936	0.0084
MFINT	10.55798	2.511868	0.1286
∆MFINT(-1)	14.63063**	5.698175	0.0294
MFA	0.014572**	6.942190	0.0201
∆MFA(-1)	-0.016457	-2.745826	0.1110
INFR	1.137040	1.321705	0.3172
∆INFR(-1)	-3.726190***	-3.165252	0.0870
∆INFR(-2)	3.065293***	2.974836	0.0969
ECM(-1)	-0.658323**	-6.837373	0.0207
R-Square	0.977741		
Adj R-Square	0.945580		
F-Stat	1783.384		
Prob	0.000561		
D.W Stat	2.133874		

Table 6: Long Run Effect

Variables	Long Run Coefficient	T-Statistic	Prob
Dependent variable: EDVL			
C	133.9923	0.309739	0.7605
MFL	-0.044593*	-7.879400	0.0000
MFS	0.016256	1.494328	0.1534
MFI	-0.204833*	-5.491605	0.0000
MFINT	5.555949	0.246254	0.8084
MFA	0.027783*	3.773307	0.0015
INFR	-1.227622	-0.485160	0.6338
R-Square	0.944994		
Adj R-Square	0.922344		
F-Stat	41.72221		
Prob	0.000000		
D.W Stat	2.248729		

* = 1%, ** = 5% and *** = 10% Significance Level Respectively.
Source: Researcher's Estimation using E-view (2020)

The ECM coefficient of -0.66 approximately is high, correctly signed and significant at 5% level of confidence. This shows that any variable that deviate in the short run adjust to equilibrium at 66% speed in the long run after short run shock. The model demonstrated a good fit and well fiited the regression line as 95% of systematic changes in economic development is explained by all the explanatory variables jointly considered after adjusted for degree of freedom, as shown by the Adj R^2 value of 0.94558. Only 5% systematic

variation in economic development was not explained by the model, but accunted for by the perturb term. Also, all the explanatory variables have significant relationship with economic development taken together as shown by the F-statistic value of 1783.38 and significant at 1% confidence level. Almost all the lag periods considered in the model have significant effect on the current period variables (except for MFA$_{-1}$). Only MFL, MFS, MFI and MFA pass their significant test as shown by their probability coefficient that is < 0.10. This shows that these variables contributed significantly to Nigeria ED in the short run. the Durbin Watson Statistic of 2.1 and 2.25 in table 5 and 6 can be approximated to 2.0 respectively. This shows there may be absent of serial correlation in the model.

Discusion of Findings

All microfinance banks variables considered in the model have different degree of effect on economic development in Nigeria, although in different magnitude in table 5 and 6. First, microfinance loans have significant effect on economic development in Nigeria both in the short and long run period, although the effect in the long run (table 6) is negative. The performance of this variable is in line with *A priori* expectation. This means that microfinance effort of channelling loans and advances to the active poor is in the right direction since it influence on economic development in Nigeria is meaningful. The long run negative relationship could be attributed to high interest rate, economic hardship, political instability and insecurity. This finding is in line with that of Maksudova (2010), Ajagbe and Bolaji (2013), Murad and Idewale (2017) in the literature. However, contrary to the findings of Usifoh and Ezeanyeji (2017), Werigbelegha and Chukwunulu (2018), Wachukwu, Onyema and Amadi (2019) in the literature. Second, Microfinance savings have significant effect on economic development in Nigeria in the long run as indicated in table 6. This shows that microfinance deposits over the years were effectively translated in loans and advances extended to active poor for viable economic activities that enhance growth and spur economic development in the long run. This finding corroborate with the findings of Ayodele and Arogundade (2014), Ifionu and Olieh (2016), Wachukwu et al (2019), and contrary to the findings Okere, Kingsley, Lawreance and Ozuzu (2018) in the literature.

Third, Microfinance Investments (MFI) has significant effect on economic development in Nigeria both in the short and long run period as indicated in table 5 and 6. This means that microfinance have been investing in positive Net Present Value (NPV) project over the years since their investment had significant effect of economic development of Nigeria, although the effect became negative in the long run. This could be caused by the high risk level and uncertainty in the Nigeria macroeconomic environment. The finding is in line with that of Murad and Idewale (2017) and contrary to the findings of Wachukwu, Onyema and Amadi (2019) in the literature. Also, microfinance asset was found to have significant effect on economic development in Nigeria both in the short and long run period in both table 5 and 6. The variable also conform to *A Priori* expectation as it goes a long way to show that the expansion policy of MFBs across the length and breadth of Nigeria heads towards the right direction and has enhance the standard of living to a reasonable extent. This outcome is in line with the findings of Jegede et al (2011), Usifoh and Ezeanyeji (2017), Wachukwu et al (2019), and contrary to the findings of Okafor et al (2016) in the literature. Finally, significant relationship was not found between microfinance inflation and interest rate during the period under review. This shows microfinance interest and inflation rate has been kept under a reasonable threshold to encourage microfinance savings, lending and investment over the years. From the foregoing analysis, it can be deduced from the findings that the introduction of micro finance banking and it activities in Nigeria as one of the financial inclusion strategy significantly contribute to economic development in Nigeria during the studied period.

5. Conclusion and Recommendations

This paper looked at the effect of microfinance banks on ED in Nigeria. From the findings of this study, we conclude that MFBs variables of Loan/Advances, savings, investments and size have a significant influence on ED in Nigeria. From the findings, the following recommendations are made:

1. A serious policy concern must be implemented by regulatory bodies and top level management of microfinance banks to ensure that loan size and tenor match customer's need to encourage effective utilization of such loans.
2. Continuous monitoring of MFBs investment is needed from the regulatory agency and management of MFBs to sustain this desired objective.
3. The policies that will encourage increase in size and branches of MFBs should be embark upon by the CBN to further enhance its contribution to economic development
4. Human capital development should be considered as an essential aspect of developmental strategies in Nigeria.
5. More infrastructural developments (such as good roads, security, communication, power supply, etc.) should be carried out by the government in areas where microfinance banks are establish to surge economic activities in MFBs location.

References

Afolabi, M. O. 2013. Growth effect of small and medium enterprises (SMEs) financing in Nigeria. *Journal of African Macroeconomic Review. 3*(1), 193-205. https://www.emerald.com/insight/content/doi/10.1108/RAMJ-09-2020-0056/full/pdf [accessed 08 March 2019].

Ajagbe, T. S., Bolaji, B.O. 2013. Socio-economic impact of microfinance bank on the standard of living of commercial motor cycle riders in Ilorin west LGA of Kwara state, Nigeria. *Journal of Business Management (JBM), 1*(4), 2-13.

Amin, M.D., Jalal Uddin, S. 2018. Microfinance-economic growth nexus: A case study on Grameen bank in Bangladesh. *International Journal of Islamic Economics and Finance, 1*(1), 13-29. https://journal.umy.ac.id/index.php/ijief/article/view/112/3626 [accessed 09 March 2019].

Ayodele, A. E., Arogundade, K.K. 2014. The impact of microfinance on economic growth in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences, 5*(5), 397-405.

Chiazor, I., Jegede, A., Ozoya, M.I., Adebayo, M. 2018. The impact of Covenant University Micro Finance Bank on Small Businesses in OTA and ENVIRONS. *Advances in Social Sciences Research Journal, 5*(5), 34-43. https://doi.org/10.14738/assrj.55.4517.

Eigbiremolen, G. O., Anaduaka, U. S. 2014. The place of microfinance in today's economy: Further evidence from Nigeria. *International Journal of Academic Research in Economics and Management Sciences, 3*(1), 12-22. http://dx.doi.org/10.6007/IJAREMS/v3-i1/551.

Engle, R.F., Granger, C.W.J. 1987. Co-integration and error correction: Representation, estimation, and testing representation, estimation, testing. *Hill Library Econometrica. 55*(2), 251 – 276.

García-Pérez, I., Fernández-Izquierdo, M.A., Muñoz-Torres, M.J. 2020. Microfinance institutions fostering sustainable development by region. *Sustainability (MDPI)*, 12 (1), art. No. 2682,. https://doi.org/10.3390/su12072682.

Ifionu, E.P., Olieh, G. 2016. A decade of microfinance banks' operations and economic development in Nigeria. *Research Journal of Finance and Accounting*, 7(5), 152-161. https://iiste.org/Journals/index.php/RJFA/article/view/29715 [accessed 12 July 2019].

Irobi, N.C. 2008. Microfinance and poverty alleviation: A case study of Obazu progressive women association, Mbieri. *Imo State, Department of Economics Journal Uppsala*, *3*(1), 4-21. https://stud.epsilon.slu.se/10927/1/irobi_n_170920.pdf.

Jegede, C.,A, Akinlabi, K.J., Babatunde, H. 2011. Impact of microfinance on poverty Alleviation Nigeria: An empirical investigation. *European Journal of Humanities and social sciences*, *2*(I), 20-49. https://www.semanticscholar.org/paper/Impact-of-Microfinance-on-Poverty-Alleviation-in-%3A-Jegede-Akinlabi/da4e975166bcaefdcb4db63c24664b8b91cc3b8d [a 21 July 2019].

Makorere, R. 2014. The role of microfinance in promoting small and medium enterprises (SMEs) in Tanzania. *Global Business and Economics Research Journal*, *3*(2), 1-19. https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.1020.362&rep=rep1&type=pdf [accessed 21 July 2019].

Maksudova, N. 2010. Contribution of microfinance to financial sector development and growth. Working Paper, CERGE-EI, Charles University, Prague. https://www.findevgateway.org/sites/default/files/publications/files/mfg-en-paper-contribution-of-microfinance-to-financial-sector-development-and-growth-feb-2010.pdf [accessed 21 July 2019].

Murad, A.B., Idewele, I.E.O. 2017. The impact of microfinance institution in economic growth of a country: Nigeria in focus. *International Journal of Development and Management Review* , *12*(1), 1-17. https://www.ajol.info/index.php/ijdmr/article/view/157831 [accessed 27 July 2019].

Nwude, E.C., Anyalechi, K.C. 2018. The impact of microfinance on rural economic growth: The Nigerian experience. International Journal of Economics and Financial Issues, 8(4), 27-31. https://www.econjournals.com/index.php/ijefi/article/view/6628 [accessed 5 August 2019].

ZahidMahmood, H., Abbas, K., Fatima, M. 2017. Islamic microfinance and household welfare nexus: empirical investigation from Pakistan. *J Glob Entrepr Res* **7**(18), 1-20. http://dx.doi.org/10.1186/s40497-017-0075-1.

Obadeyi, J. A. 2015. Microfinance banking and development of Small and Medium Scale Enterprises in emerging economy: Nigerian approach. *IOSR Journal of Economic and Finance*, *6*(2), 50-60. http://repository.elizadeuniversity.edu.ng/bitstream/20.500.12398/962/1/H06215060.pdf.

Ofeimun, G.O., Nwakoby, C. and Izekor, O.A. 2018. Effects of microfinance banks on small businesses' growth in Nigeria. *International Journal of Economics and Business Management*, *4*(4), 15- 25.

Okafor, I.G., Ezeaku, H.C., Ugwuegbe, S. 2016. Microcredit and poverty reduction: A case of Nigeria. *International Journal of Multidisciplinary Research and Information*, *1*(1), 13-19. https://www.academia.edu/24957500/MICROCREDIT_AND_POVERTY_REDUCTION_A_CASE_OF_NIGERIA [accessed 10 September 2019].

Okere, P. A., Kingsley C, O., Lawrence N, U., Ozuzu, P.N. 2018. Financial inclusion and economic growth of Nigeria (the microfinance option. *International Journal for Innovation Education and Research*, *6*(2), 61–74. https://ijier.net/index.php/ijier/article/view/949

Osamwonyi, I.O., Obayagbona, J. 2012. The role of microfinance banking in the development of the Nigerian economy. *Finance and Banking Review*, *6* (1 and 2), 46- 66. https://scholar.google.com/citations?user=3uAlH5MAAAAJ&hl=en [accessed 2 October 2019].

Obayagbona, J. 2018. Microfinance Bank and Poverty Alleviation in Nigeria: An Impact Assessment. *Amity Journal of Finance*. 3(2), 1-12. https://amity.edu/UserFiles/admaa/b585bPaper%201.pdf

Raihan, S., Osmani, S.R., Baqui Khalily, M.A. 2017. The macro impact of microfinance in Bangladesh: A CGE analysis. *Economic Modelling, 62*, 1-15. https://doi.org/10.1016/j.econmod.2017.01.002.

Khalaf, L.S., Saqfalhait, N.I. 2019. The effect of microfinance institutions activities on economic growth in Arab countries. *Academy of Accounting and Financial Studies Journal*, 23(1), 1-18.

Ugochukwu, M.N., Onochie, G. 2017. Impact of micro-credit on poverty reduction in Nigeria. *Journal of Arts, Management and Social Sciences (OJAMSS), 2*(2),.149 –163. https://doi.org/10.12816/0042815.

Usifoh, K.S., Ezeanyeji, C.I. 2017. Impact of microfinance banks on poverty alleviation and economic growth in Nigeria. *NG - Journal of Social Development*, *6*(5), 22-34. https://www.researchgate.net/publication/328026018_Impact_of_Microfinance_Banks_on_Poverty_Alleviation_and_Economic_Growth_in_Nigeria

Wachukwu, I.P., Onyema, J.I., Amadi, S.N. 2019. Microfinance banking and economic growth of Nigeria. *Journal of Finance-Marketing*, *2*(4), 16-20. http://dx.doi.org/10.35841/finance-marketing.2.4.16-2.

Walker, D. 1999. *Replicating microfinance in the United States*. Washington, D.C. Woodrow Wilson Center Press, 19–61.

Werigbelegha, A.P., Chukwunulu, J.I. 2018. Microfinance banks' credit and the growth of small and medium scale businesses (SMBS) in Nigeria (1990-2016): Investigating the nexus. *Journal of Economics and Sustainable Development*, *9*(6), 29-33. https://www.iiste.org/Journals/index.php/JEDS/article/view/41681 [Accessed 4 December 2020].

Bio-note

Ogiemudia Aigbedo Omorose, Ph.D., is an adjunct lecturer II in the *University of Benin, Banking and Finance Department*, and have researched across different areas of economics, banking and finance, Ogiemudia focused on capital market, money market, corporate and behavioural finance, conducting a study on such aspects at both country specific and cross-country level.

Igbinovia Eghosa Lawson, Ph.D, is a lecturer (I) in the *University of Benin Banking and Finance Department* and member of the several research teams developed within the projects implemented by our department and faculty. As a doctoral researcher, Igbinovia focused on financial liberalization of Sub-Sahara Africa (SSA) and other areas of corporate and international finance, behavioural and mortgage finance; conducting a study on such aspects across the region.

Airhiavbere S. Amenze, Mrs., is a lecturer and Ph.D candidate in *the University of Benin Banking and Finance Department*, and has researched across different areas of banking and finance, Amenze focused on capital market, corporate finance and money market conducting a study on such aspects at both country specific and cross-country level.

DOES SIZE MATTER IN ORGANIZING CORPORATE SOCIAL RESPONSIBILITY (CSR) IN ROMANIAN FIRMS?

Casiana-Teodora Ille[*]
Doctoral School of Economics, Faculty of Economics and Business, University of Oradea, Romania
casiana.ille@gmail.com

Abstract: *The concept and practice of CSR have displayed chameleonic features through time and nowadays the level of involvement, planification, organization and evaluation of CSR incentives differ from region to region and between companies. There is still need to shed light and construct a unitary view on the subject both in theory and practice. Companies' role in society has expanded with the shifts of power in the globalization process and their social impact can be seen more than ever. Business entities now need to explain how their actions affect the economy, the environment, and society overall due to the release of Corporate Social Responsibility (CSR) Reports and as well as the increase in academic interest in the topic, fact that puts them in the spotlight both regionally and internationally. Although the notion of CSR is still relatively new in Romania and was only introduced at the beginning of the 1990s, it has been a prominent topic in literature and practice during the past few decades. Nevertheless, Romanian CSR practice is not well supported by empirical evidence. Companies can have a significant impact on the progress of a developing country. Therefore, through this research we aim at determining the state-of-art of CSR incentives in Romanian companies, the level of involvement, organization, budgeting, strategies and evaluation in connection with firm size and capital ownership. This empirical study consists of research that is part of a broader quantitative analysis of CSR focusing on the Romanian context. In this study we provide insights regarding the involvement and organization of CSR incentives of companies with the purpose of testing the existence of a relationship in connection with firm size taking into consideration the number of employees, capital ownership and firm age.*

Keywords: CSR strategy and organization, Romanian companies, Romanian firms survey

JEL classification: M14, D22.

1. Introduction

Since ancient times, the concept of CSR has been shaped through several tendencies and it is still a developing area both in study and practice amidst a lot of confusion (McWilliams & Siegel, 2011; Garriga & Mele, 2004) due or maybe despite the considerable broad spectrum of approaches.

Firms have begun to take on obligations that were previously thought of as governmental activities as the role of companies has expanded (Scherer & Palazzo, 2008). Due to the fact that these activities do not correspond to the initial economic role of the business in society as stated by the theory of the firm, many economists are critical when it comes to studying this topic (Scherer & Palazzo, 2011). Additionally, it goes beyond what is perceived to be

---

corporate responsibility by society (Whetten & Mackey, 2002). A growing number of businesses are planning CSR events that have both economic and social benefits (Kramer & Porter, 2011) and this is now leading in a new meaning rather than the traditional view of CSR, which was only confined to philanthropy before shifting to business-society relations with regards to the actions carried out by companies meant to solve societal problems (Ismail, 2009).

The pressure that has been applied lately on companies from civil society in general, by governments, and all the other groups of interests leaves no debatable issue regarding the importance of creating a rather sustainable CSR strategy for companies, regardless of their size. The question is whether companies should invest or how much should invest in building a socially responsible strategy.

Romania is still a developing country and even though socially responsible behaviors have been displayed by the companies since its early stages of democracy, the practice of CSR is still relatively new and insufficiently supported by empirical data.

In recent decades, CSR has gained popularity on a global scale both in the academic and in the business field and even though to a lesser extent, the Romanian literature has followed international trends.

2. Literature review
2.1. CSR conceptual framework
CSR has known several transformations through time and literature is still unclear and inhomogeneous. Since it was firstly defined in 1953, the concept has known different development phases.

The origins of CSR may be traced to ancient Rome (Chaffee, 2017), while the 1950s and 1960s mark the beginning of the modern era of social responsibility. CSR in the 1970s was primarily focused on a managerial perspective, with an emphasis on labor and safety rights (Agudelo, et al., 2019). The term of business ethics entered the business vocabulary in the 1980s, paving the way for the operationalization of CSR (Cochran & Wood, 1984).

The next decade had seen the globalization of CSR, and in 1998 Elkington introduced the idea of "The Triple Bottom Line," which is a framework that balances a company's influence on society, the environment, and the economics. According to Elkington (1998), performance can be attained through successful, long-term relationships between the public and private sectors as well as amongst all stakeholders. The academic publications' strategic approach to CSR gained momentum in the 2000s as it was acknowledged, developed, and put into practice. In the 2010s, the emphasis was on creating shared value (Werther & Chandler, 2005; Agudelo, et al., 2019). Large corporations have gradually begun to apply CSR practices, such as making public commitments to follow regulations, investing in local communities, encouraging stakeholder participation, and routinely disclosing social and environmental performance to the public. CSR has expanded past, the realm of charitable giving and charitable deeds, both philosophically and practically. CSR has developed into a proactive method for incorporating stakeholders' interests, preserving competitive advantage, and balancing short- and long-term goals (Badulescu, et al., 2016).

2.2. Romanian Context
CSR is still in development in Romania and is mainly centered in the sector of multinational corporations. The initial concept became popular in the 1990s. Until now, major corporations have incrementally developed a code of conduct for ethical behavior that has been adopted from the parent company and instated locally (Săveanu, et al., 2020).

The term "CSR" undoubtedly relates to the activities of large, multinational corporations; however, there are opinions that it can also refer to other enterprises, regardless of their size, origin, or stakeholder aims (Badulescu, et al., 2016).

Studies on how SMEs contribute to social responsibility and sustainability show that there is growing interest in this area, with managers' attitudes toward the role of business in society and the scale of enterprises serving as the primary drivers of this interest (Badulescu, et al., 2018; Saveanu, et al., 2019). Specific cultural factors and beliefs also have an impact on the growth and coordination of Romanian CSR approach to the European way. The focus on CSR has been raised both for academics and practitioners and the Romanian context follows international trends (Ille, 2021).

Obrad, et al., (2011) examined how Romanian businesses engage in socially responsible activities and the study found that there are several problems with how these businesses conduct CSR activities, most notably those relating to transparency and the sharing of CSR documentation. Small and middle-sized companies could be hesitant to participate in CSR activities due to their limited human and financial resources, compared to large corporations. SMEs are further impacted by the unstable business climate, which excessively prioritize their own survival and short-term goals at the expense of long-term strategies, lack the expertise (or contacts) to incorporate social responsibility into day-to-day operations, lack the assurance that they will see immediate and noticeable results, and find it challenging to quantify the intangible benefits (Aston & Anca, 2011). Corporate governance includes CSR activities, and foreign ownership is linked to improved CSR implementation (Swandari & Sadikin, 2016). Also, according to Oh et al., (2011) foreign ownership has a favorable impact on CSR. Some scholars also believe that firm size has also an impact on CSR strategies. For example, Swandari and Sadikin (2016) argue that many large businesses have effective CSR programs that are capable of empowering the community. Zbuchea and Pinzaru (2017) also demonstrate that CSR strategies are related to the size of the company. The authors highlight the fact that some studies show that SMEs are more motivated for CSR involvement than large companies although other studies suggest that CSR models for CSR are not set in a strategic framework, issue that the forementioned authors suggest that could be resolved in time if more empirical documentation regarding the strategic value of CSR is to be gathered. Large companies have at their disposal more financial and human resources when compared to SMEs.

3. Purpose and objectives of the research

In this research, we aim to assess the influence of firm size and capital ownership on the level of CSR involvement on a sample of companies that run businesses in Romania. Therefore, with the help of a questionnaire, we have conducted a quantitative analysis that seeks to determine if firm size and capital ownership have an influence on the level of firm involvement in socially responsible actions.

We have set the following objectives in this study:

O1. Investigate whether the size of the company influences company's involvement in CSR activities;
O2. Determine if CSR strategy is influenced by the size, capital ownership and firm age;
O3. Assess whether a correlation exists between the size of the company and the CSR budget;
O4. Examine the impact of firm size on CSR organization and evaluation.

In order to reach the objectives that we have proposed, we have performed a quantitative analysis on a sample of companies that conduct business in Romania.

4. Methodology

Data used in the current analysis was gathered via an online survey at the beginning of 2022. The instrument consists of 20 questions and 71 responses were gathered. This research is based on five of the questions in the survey. The questionnaire was designed to profile the CSR efforts of enterprises operating in Romania. The survey was sent online via email in both English and Romanian (but predominantly in Romanian), and it consists of questions in a range of formats, including multiple-answer, single-answer, and five points rating scales. We operated SPSS for the statistical analysis.

All of the 71 companies involved in the study run their businesses in Romania and almost half of them (42.3%) have Romanian capital; 31% are foreign owned and 26.8% have mixed capital. Regarding the type of the organisations included in the study, 92% of the respondents are part of a firm, 5.6% of the respondents are NGOs and 1.4% public institution. Most of the responses were gathered from SMEs (more than 60% of the responses) but also from large firms that have between 250-500 employees (38.9%).

The questionnaire was designed to collect information from a variety of business types across industries because the topic of the study affects all spheres of economic activity. However, almost half of the surveyed businesses (47.9%) engage in the delivery of services, 11.3% in the retail sector, and 9.9% in production. The survey included both new and established businesses, with a smaller percentage of new businesses operating for less than two years. More than half of the surveyed companies (57.5%) have been in business for more than 10 years but a considerable percent also between 2 and 10 years (36.6%). A small percent is represented by new companies that run business for less than 2 years (5.6 percent).

5. Findings

In this paper we analyze the influence of firm size and capital ownership on the level of CSR involvement and organization on a sample of companies that run businesses in Romania.

5.1.CSR involvement

As part of the study, the respondents were asked to rate on a five-point scale the following affirmation: "The company I work in is socially responsible", where 1 corresponds to 'strongly disagree' and 5 corresponds to 'strongly agree'. The results can be observed in Figure 1.
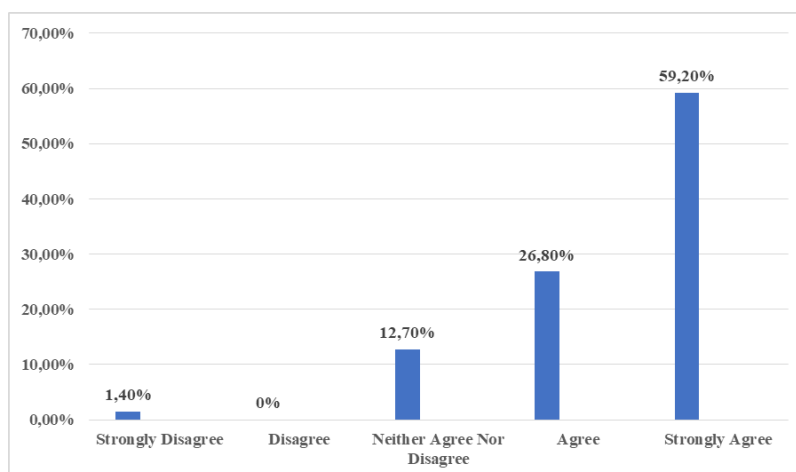
**Figure 1:** "The organisation I work in is socially responsible"
Source: author's calculations based on dataset

Therefore, when asked if their company is socially responsible, only 60% of the respondents strongly agreed to the affirmation, less than 30% agreed, while around 13% were neutral and 1% strongly disagreed.

The relationship between the size of the business and the degree of social involvement has been analyzed. Based on the replies from the companies involved in the study, correlations have been tested. There is a significant correlation between size of the enterprise and the level of CSR involvement. A higher number of employees is correlated with a higher social involvement (Pearson correlation (r) =0.357, Sig=0.002). The type of capital is not related with the level of involvement.

5.2. CSR strategy

The evidence collected through the questionnaire reveals that approximately 15% of respondents lack a clear CSR strategy, while about 60% of respondents do have a clear CSR strategy as depicted below in Figure 2.
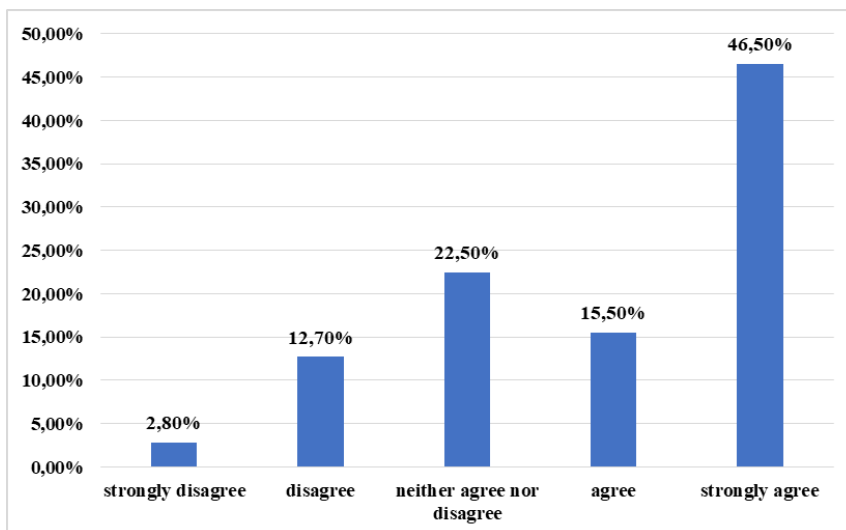
Figure 2: "Our organization has a clear CSR strategy"
Source: author's own work

The relationship between the organizations with a clear CSR strategy and the type of capital, the number of employees, and the age of the company has also been examined. The analysis's findings demonstrate that the presence of distinct CSR strategies is influenced by the type of capital: enterprises with foreign capital are more likely to have one (Pearson Chi-Square=24.753, Sig=0.002). However, given the limited number of replies in each category, these findings should be interpreted with caution.

Outcomes of the analysis reveal that the presence of clear CSR strategies is influenced by the number of employees: companies with higher numbers of employees are more likely to have a clear CSR strategy (Pearson correlation r=0.435, Sig=0.001).

The question arises whether the age of the company also influences the existence of CSR strategies, therefore this correlation has been tested. The result shows that the age of the company does not influence the existence of clear CSR strategies on our sample (Pearson Correlation (r) = 0.032, Sig=0.790).

As a consequence, while the age of the company has almost no influence on the existence of clear CSR strategies, the type of capital and the number of employees do on our sample.

5.3. CSR budget

According to the questionnaire results, 23% of the examined companies do not have a specific CSR budget, and 22% of them invest less than 5000 euros annually in CSR activities. On the other hand, an additional 20% of the sample enterprises invest more than 20.000 euros annually on CSR initiatives. Findings are depicted in Figure 3 below.
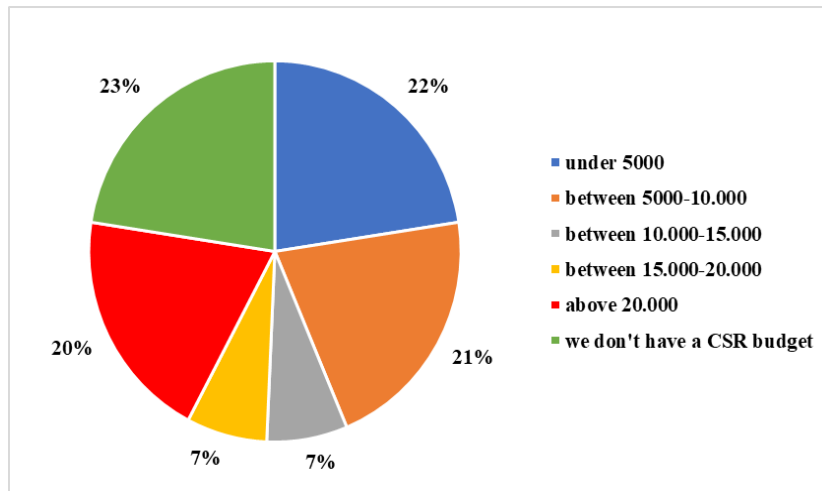
**Figure 3:** CSR budget in euros of the sample companies (%)
Source: author representation based on dataset

Analysis shows that as far as the CSR budget of the sample companies is concerned, there is a significant positive correlation between the number of employees and the CSR budget. (Pearson Correlation r=0.584, Sig=0.001).

5.4. CSR activities organization and evaluation

Companies that participated in the survey are more likely to spontaneously participate in CSR incentives. According to analyses, Romanian businesses are more likely to engage spontaneously in CSR activities, by company management, while companies with foreign capital ownership organize CSR by HR departments. While large organizations arrange CSR activities through HR or CSR departments, SMEs are more likely to engage in CSR activities on an ad hoc basis by the management of the company.

According to the questionnaire responses, 14 percent of the organizations employ external evaluation, whereas 50% of the companies measure their CSR operations internally. 35 percent of businesses do not evaluate the effects of their CSR initiatives as seen in Figure 4.
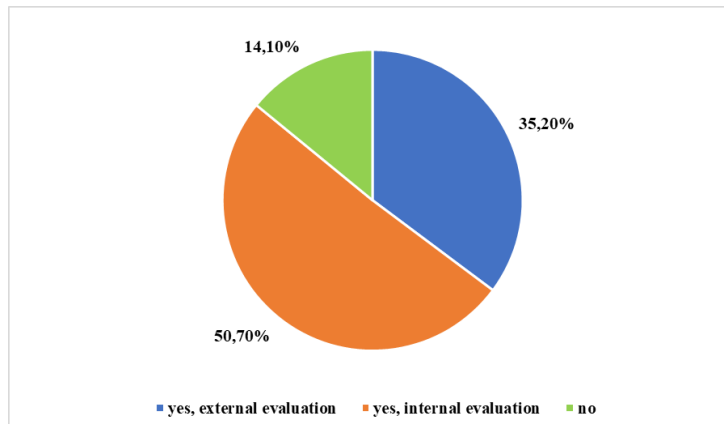
Figure 4: Responses to the question: "Do you measure the impact of your CSR activities?"
Source: author's representation based on dataset

The analyses of the questionnaire responses show that the average number of employees is significantly higher for firms who measure their CSR impact (M=3.13, St. Dev.=1.087) compared to those who do not (M=2, Std. Dev=0.957), t (55.02) =4.526, p<0.001.

We also questioned going further with the research whether the type of capital ownership influences the evaluation of the impact of CSR activities. According to analyses, Romanian-owned businesses are less likely than international ones to gauge the efficiency of their CSR initiatives. In order to determine whether large firms or SMEs are more inclined to monitor the impact of their CSR incentives, we looked into the interest toward measuring the impact of their CSR efforts. The findings indicate that SMEs are more likely to use internal evaluation while large enterprises are more likely to utilize external evaluation when assessing the impact of their CSR initiatives.

6. Conclusion

In this study, we have examined the broad international context of CSR as a concept with a brief literature review, providing insights on the specific case of Romania. This paper contributes to the existing literature by providing empirical research on the topic of CSR in a developing country. We have focused our research on the Romanian context, where the concept is still relatively new and it became known in the '90s when international corporations made way to the new democracy and social responsibility was perceived as philanthropic activities and sponsorships.

The empirical evidence in this study is based on the responses from 71 companies operating in Romania to five of the questions in the applied questionnaire. The majority of the businesses are Romanian-owned companies and SMEs constitute the majority of the sample (taking into consideration the number of employees). Most of the of the companies involved in the study are socially involved.

As a result of the analyses, we have determined that there is no relationship between CSR activity and the sample's capital ownership or firm age. However, several correlations between the number of employees and CSR involvement have been tested. According to the evidence, larger companies engage in CSR initiatives at a higher rate than SMEs, and CSR participation increases with the number of employees *(Objective 1).*

The outcomes of this research show that the presence of defined CSR strategies is influenced by the type of capital; businesses with foreign capital are more likely to have such strategies (*Objective 2)*. However, due to limited number of replies in each category, these findings should be interpreted with prudence. This finding is supported by theory, as

literature shows, foreign corporations introduced CSR to Romania, where it is still in its development phase and mostly seen as a marketing or public relations technique, according to Obrad, et al. (2011).

The presence of defined CSR strategies is also influenced by the size of the company; companies with higher employee numbers are more likely to have such strategies. However, research indicates that while the age of the organization has little influence on the existence of defined CSR initiatives, the type of capital and the number of employees do (*Objective 2).* We have determined that the number of employees and the CSR budget are positively correlated (*Objective 3).* Most of the businesses involved in the survey have maintained their CSR budget constant over the last three to four years.

The outcomes of this research show that Romanian businesses are more likely to engage in CSR activities on an ad hoc basis, under the direction of company management, whereas businesses with foreign capital arrange their CSR initiatives through HR departments. While SMEs are more likely to participate voluntarily in CSR initiatives, large corporations arrange their activities through HR and CSR departments (*Objective 3).*

According to research, we have ascertained that companies who assess their CSR impact have much more employees on average than those that do not. According to analyses, Romanian-owned businesses are less likely than international ones to measure the efficiency of their CSR initiatives. When determining the impact of their CSR operations, large companies are more inclined to employ external evaluation than SMEs, who are more likely to use internal evaluation (*Objective 4).*

One of the major limitations of this research is the small sample size of responders. In order for the respondents to deliver the best response to the questions, we must also take their availability into account. However, we believe that the information from this study is significant for academics, professionals, and decision-makers. The findings add to the existing literature and offer empirical insights that are helpful in advancing the topic's conceptual understanding as well as it constructs developments for further study. CSR in Romania and abroad still needs to be clarified, and additional empirical study can help to do so. Consequently, we consider that a larger study with a representative sample of businesses in Romania and the surrounding area would be relevant.

References

Agudelo, L., Jóhannsdóttir, M. A. L. & Davídsdóttir, B., 2019. A literature review of the history and evolution of corporate social responsibility. *International Journal of Corporate Social Responsibility,* 4(1), pp. 1-23. DOI: https://doi.org/10.1186/s40991-018-0039-y

Aston, J. & Anca, C., 2011. *Socially Responsible Small and Medium Enterprises (SMEs): Guide on Integrating Social Responsibility Into Core Business.* s.l.:Project Co-Funded by the European Social Fund: Association of Romanian Exporters and Importers (ANEIR).

Badulescu, A., Badulescu, D., Saveanu, T. & Hatos, R., 2018. The relationship between firm size and age, and its social responsibility actions—Focus on a developing country (Romania). *Sustainability,* 10(3), p. 805. DOI:https://doi.org/10.3390/su10030805

Chaffee, E., 2017. *The Origins of Corporate Social Responsibility.* New York, Social Science Research Network. DOI: https://doi.org/10.1186/s40991-018-0039-y

Cochran, P. & Wood, R., 1984. Corporate Social Responsibility and Financial Performance. *Academy of Management Journal,* 27(1), pp. 42-56.

Elkington, J., 1998. Accounting for the triple bottom line. *Measuring Business Excellence,* 2(3), pp. 18-22. DOI: https://doi.org/10.1108/eb025539

Garriga, E. & Mele, D., 2004. Corporate Social Responsibility Theories: Mapping the Territory. *Journal of Business Ethics,* Volume 53, p. 51–71. DOI: https://doi.org/10.1023/B:BUSI.0000039399.90587.34

Ille, C., 2021. Cristallising a Concept: a Bibliometric Analysis of Corporate Social Responsibility and Sustainability. *Annals of the University of Oradea, Economic Science Series,* 30(1), pp. 101-113. https://EconPapers.repec.org/RePEc:ora:journl:v:1:y:2021:i:1:p:101-113

Ismail, M., 2009. Corporate social responsibility and its role in community development: An international perspective. *journal of International Social Research,* 2(9), pp. 200-209.

Kramer, M. R. & Porter, M., 2011. *Creating shared value.* 17 ed. Boston: USA: FSG.

McWilliams, A. & Siegel, D. S., 2011. Creating and capturing value: Strategic corporate social responsibility, resource-based theory, and sustainable competitive advantage. *Journal of Management, 37(5),* pp. 1480-1495. DOI: https://doi.org/10.1177%2F0149206310385696

Obrad, C., Petcu, D., Gherheş, V. & Suciu, S., 2011. Corporate Social Responsibility in Romanian Companies – between Perceptions and Reality. *Amfiteatru Economic Journal,* 13(29), pp. 43-55.

Oh, W. Y., Chang, K. Y. & Martynov, A., 2011. The effect of ownership structure on corporate social responsibility: Empirical evidence from Korea. *Journal of Business Ethics,* 104(2), pp. 283-297. https://doi.org/10.1007/s10551-011-0912-z

Saveanu, T., Abrudan, M.-M., Saveanu, S. & Matei, M., 2019. Predictors of social responsibility actions of SMEs in Romania. *J. East Eur. Manag. Stud.(JEEMS) Special Issue,* pp. 120-151.

Săveanu, T., Ille, C. & Bădulescu, D., 2020. *Small and Medium Enterpises Incentives in Corporate Social Responsibility Practices Regarding Education in the North-Western Region of Romania.* Messina, Italy, 6th BASIQ International Conference on New Trends in Sustainable Business and Consumption, pp. 495-502.

Scherer, A. G. & Palazzo, G., 2008. Globalization and Corporate Social Responsibility. In: A. Crane, et al. eds. *The Oxford Handbook of Corporate Social Responsibility.* Oxford: Oxford University Press, pp. 413-431. https://ssrn.com/abstract=989565

Scherer, A. G. & Palazzo, G., 2011. The new political role of business in a globalized world: A review of a new perspective on CSR and its implications for the firm, governance, and democracy. *Journal of management studies,* 48(4), pp. 899-931.

Swandari, F. & Sadikin, A., 2016. The Effect of Ownership Structure, Profitability, Leverage, and Firm Size on Corporate Social Responsibility (CSR). *Binus Business Review,* 7(3), pp. 315-320. DOI: https://doi.org/10.21512/bbr.v7i3.1792

Werther, W. B. & Chandler, D., 2005. Strategic corporate social responsibility as global brand insurance. *Business Horizons,* 48(4), pp. 317-324. DOI: https://doi.org/10.1016/j.bushor.2004.11.009

Whetten, D. A. & Mackey, A., 2002. A social actor conception of organizational identity and its implications for the study of organizational reputation. *Business & society,* 41(4), pp. 393-414. DOI: https://doi.org/10.1177%2F0007650302238775

Zbuchea, A. & Pinzaru, F., 2017. Tailoring CSR Strategy to Company Size?. *Management Dynamics in the Knowledge Economy,* Volume 5, pp. 415-437. http://hdl.handle.net/11159/1775

Bio-note

Ille Casiana-Teodora is a *PhD Student* in the *Doctoral School of Economics, Faculty of Economics and Business, University of Oradea, Romania.* As a doctoral researcher, ILLE Casiana-Teodora has focused on social responsibility of organisations, conducting a study that focuses on the involvement of both large companies and small and middle-sized enterprises in CSR activities and their impact on economic, financial and entrepreneurial education. She has published a number of articles in international journals and participated in numerous international conferences disseminating the outcomes of these studies.