PressAcademia
www.pressacademia.org/journals/jefa
JEFA
ISSN 2148-6697
Journal of Economics, Finance and Accounting YEAR 2022 VOLUME 9 ISSUE 2

MODERATING IMPACT OF THE BOARD OF DIRECTORS ON ENVIRONMENTAL ACCOUNTING AND MARKET REACTIONS IN SOUTH AFRICA

DOI: 10.17261/Pressacademia.2022.1565
JEFA- V.9-ISS.2-2022(1)-p.38-47

Bagonza Amon[1], Yan Chen[2], Frederik Rech[3], Abdurahman Aliyi[4]
[1]Dongbei University of Finance and Economics, School of Accounting, Dalian, China.
amonbagonza@yahoo.com, ORCID: 0000-0003-2525-9943
[2]Dongbei University of Finance and Economics, China Internal Control Research and School of Accounting, Dalian, China.
chenyan2001@126.com , ORCID: 0000-0002-1811-8774
[3]Dongbei University of Finance and Economics, School of Accounting, Dalian, China.
frederikrech@gmail.com , ORCID: 0000-0002-6392-4951
[4]Dongbei University of Finance and Economics, School of Accounting, Dalian, China.
obboleso@gmail.com, ORCID: 0000-0001-6239-826X

Date Received: April 28, 2022 **Date Accepted:** June 20, 2022

To cite this document
Amon, B., Chen, Y., Rech, F., Aliyi, A., (2022). Moderating impact of the board of directors on environmental accounting and market reactions in South Africa. Journal of Economics, Finance and Accounting (JEFA), 9(2), 38-47.
Permanent link to this document: http://doi.org/10.17261/Pressacademia.2022.1565

ABSTRACT

Purpose-The UN environment challenge 2030 was set to develop and enhance approaches to sustainable development. The study was carried out to investigate the impact of environmental accounting on market reactions in Africa and more so the moderating impact of the board of directors on the said relationship.

Methodology- The study used 119 listed firms on the Johannesburg stock exchange with the period spanning 2008-2019. We used Investment variable regression model for the study using share price and adjusted market returns as proxy for market reactions and environment accounting as reported in annual integrated reports as a proxy for environmental accounting

Findings- Results obtained show that environmental accounting has a positive and statistical relationship with market reactions and the board of directors does moderate the relationship between market reactions and environmental accounting. The study shows that firms in South Africa are taking sustainability accounting correctly by accounting for the environment. This supports the legitimacy theory and also supports the notion that firms are taking the lead in climate change consideration. We are the first to make such a study in an African setting and thus we hope that regulators will pay more attention to the reports and workings of firms and their contribution to the environment.

Conclusion- The study supports stakeholder and legitimacy theories as it shows that directors carry out decisions for the benefit of all stakeholders, and firms carry out decisions to prove their legitimacy in fulfilling their societal obligations which include taking care of the environment as any responsible citizen would. In order to achieve the UN environmental goals of 2030 of a cleaner environment, we need everyone on board including firms, investors and the public. Investors can help push firms be more sustainable and take care of the environment in which they operate by refusing to buy the assets of firms engaging in pollution or purchasing assets for firms that are environmentally compliant.

Keywords: Environment accounting, market reactions, board of directors, South Africa.
JEL Codes: Q56, G00, G30

1. INTRODUCTION

When covid-19 struck the world, the environment was the biggest benefactor as it saw a record break less pollution than before. Stakeholder theory states that businesses should do their work while taking into consideration all stakeholders. Thus sustainable accounting calls for doing business while thinking of the future. But does the board of directors moderate the relationship between environmental accounting and market reactions?

The two dire questions that any company should ask are (Campbell, 2013) (1) what should accounting account for. (2) To whom is the company accountable? The intricate questions are observed in models like stakeholder continuum and Gray et al seven positions of corporate responsibility. A careful examination of these questions leads to the concept of environmental accounting.

This is so because companies are viewed as citizens of a society and thus owe it to the public to give back to the society just like any other citizen.

Accounting is so crucial a tool for assessing the performance of a company and its operations (Tan OScario Archie, 2021). The role of accounting is getting more crucial, especially with sustainability views given the decline in climate change (Makarenko & Plastun, 2017).

The Board of directors is crucial in running a firm (Khalil & Ozkan, 2016) especially in approving reports (Rensburg & Botha, 2014). They are involved in policing the firm to see that agency costs and earnings management are maintained (Khalil & Ozkan, 2016). They are responsible for approving integrated reports (Traxler et al., 2020) which report contains environmental accounting and has an impact on stock markets on the day the reports are used (Samy, 2019).

Markets react through the signaling theory effect and react differently to the news coming out from the companies (Connelly et al., 2011). It is believed and taught that markets will punish companies that are deemed not to be ethical or environmentally friendly. This is usually termed reputational damage by the companies (Jean-paul louisot, Sophie Gaultier, 2009).

South Africa is a unique economy with the economy being carried by the 70% of the population able to work (AMPS, 2011). It has a big share of the world's minerals and mining (Department of trade and industry, 2013). This means mining and all kinds of pollution. South Africa officially became part of the BRICS countries in 2010, making it one of the emerging economies in the world (Conway-Smith, 2011).

With regards to financial publications, there have been more than 160,000 publications of financial information by listed companies in circulation (AMPS, 2011). These publications which are mostly integrated reports do a detailed list of the environment accounting taking place in each company and how the business is being affected by the environment and how it affects the environment. Furthermore, South Africa has had integrated reporting as one of the core requirements for being listed on the stock exchange since 2010 making it the best sample choice.

South Africa was chosen as it has the best-developed Stock exchange in Africa (Maubane et al., 2014), Better regulations in Africa (Maroun & Atkins, 2015), Is the second-largest economy, and is involved in a number of mining companies and heavy construction industry in Africa.

This Article has three contributions namely; (1) it supports the stakeholder theory by showing the moderating impact of the board of directors on environmental accounting and market reactions. (2) It goes on to show if the markets in South Africa are woke in the sense that they do care about the activities of any business that operates within their sphere. This is good leverage in the hands of consumers as it makes companies and businesses think of the wider impacts apart from profits. And (3) it shows how South Africa has awakened to the global call to companies to do account for the environment and the society they live in as citizens. This has an implication that Companies and businesses are taking the frontline in the fight against climate change.

We are the first to examine this relationship and we hope that other African economies will take a look at such methods as seen in South Africa and thus promote accounting for the environment in their respective countries.

The rest of the paper is organized as follows; the theoretical framework followed by literature and hypothesis development, methodology and modelling, results and discussions and finally the conclusion and recommendation section.

2. THEORETICAL FRAMEWORK

2.1. Stakeholder Theory

This theory describes the inter-relationship between the many actors involved in an entity and offers an alternative purpose for the firm(Ramachandran, 2020). This theory was intended for firms to find ways of managing their varying set of stakeholders who include almost everyone from shareholders to the government to the general public or society at large.

The theory is most of the time linked to corporate social responsibility. Management should know that every decision it makes affects everyone in the society and thus should look to optimize decisions for the benefit of all people. Managers should not only look at maximizing the shareholder's wealth or look out for managerial interests at the expense of other individuals who will be affected by the same decision.

2.2. Legitimacy Theory

Legitimacy theory has got quite a few definitions for example,(Burlea-schiopoiu & Popa, 2013) Defines it as a medium that supports companies and businesses in developing and realizing voluntary and social disclosures so as to fulfill their societal agreements that empower the acknowledgment of the objectives and survival in a stormy environment.

(Suchman, 1995) defines legitimacy theory as the general perception that the works of an organization are appropriate, desirable, and proper within societal norms, values, and definitions. This goes on to say that the operations of the business/ entity should be in line with the expectations of society. Where the operations of the entity go against the expectations of the society, the organization can be punished by the society through reputational damage. This punishment can range from dumping their shares to boycotting their products and services.

The global village, climate activists, and the new generation of society that cares about their environment have put enormous pressure on organizations to account for the environment they reside in and re-evaluate their systems.

3. LITERATURE AND HYPOTHESIS DEVELOPMENT

Accounting is so crucial a tool for assessing the performance of a company and its operations (Tan OScario Archie, 2021). The role of accounting is getting more crucial, especially with sustainability views given the decline in climate change (Makarenko & Plastun, 2017). Accounting used to be limited to financials and what affects the company directly until the introduction of environmental accounting. Businesses are citizens in societies where they reside and thus contribute positively or negatively to the society they reside in. This had to be accounted for.

(Che Ahmad et al., 2015) states that environmental accounting at the company level details identification, measurement, recognition, and disclosure of environmental costs, contingencies, and liabilities in company reports for the benefit of all stakeholders. The disclosure of such information is increasingly becoming more paramount for the wide varying stakeholders.

The Board of directors is crucial in running a firm (Khalil & Ozkan, 2016) especially in approving reports (Rensburg & Botha, 2014). They are involved in policing the firm to see that agency costs and earnings management are maintained (Khalil & Ozkan, 2016). They are responsible for approving integrated reports (Traxler et al., 2020) which report contains environmental accounting and has an impact on stock markets on the day the reports are used (Samy, 2019).

Integrated reporting refers to a concise communication of how a company's strategy, performance, governance, and prospects lead to value creation over the short, medium, and long term (IIRC, 2013). Integrated reporting combines both non-financial and financial performance measures in such a way as to communicate corporate strategy (Ernst &Young, 2012).

Integrated reporting as per the integrated reporting standards board lists that an integrated report should include an accounting for the environment. Although this environmental accounting is debatable as it considers direct environment accounting and doesn't consider environmental costs for example psychological impact on the society, It gives a hint that the company is committed to taking care of its environment.

South Africa has a lot of companies involved in the mining and construction industry which do report about their activities in annual integrated reports. Especially those listed on the Johannesburg stock exchange. Pollution is the major cause of environmental degradation (Tan OScario Archie, 2021) (Temba 2019).

Since environmental accounting is synonymous with company performance(Che Ahmad et al., 2015)(Rachael, 2020), The markets react to the information contained in those integrated reports when the reports are issued by companies. Since these reports contain accounting for the environment, conscious investors and consumers who read them take actions depending on their set of beliefs as any rational investor would. This leads us to believe that and formulate the following hypothesis;

H_1: Markets react to environmental accounting by listed companies.

H_2: The relationship between environmental accounting and market reactions is moderated by integrated reporting.

4. METHODOLOGY AND MODELLING

Data for investigating the moderating relationship between environmental accounting and market reactions in South Africa is got from a combination of Dongbei University of finance and economics Osiris and individual company audited integrated annual reports from 2008 to 2019.

The study is based on a sample size of 246 listed companies on the Johannesburg stock exchange. And the data is computed for results using Stata software. Table X shows the variables under study together with their definitions and measurements

The independent variable used is environmental accounting. Due to a lack of a clearly defined measure of environmental accounting, we adopt the use of binary system where 1 stands for the environment being accounted for in the annual reports and zero otherwise.

Market reactions, which is the dependent variable has got two measures i.e., (1) share price and (2) adjusted market returns. Share price refers to the value of a single asset price at a given date on a stock market. A share price is a great tool and informant

of market reactions because it acts as a signal of what is taking place in the company's business. This is so through the signaling theory(Connelly et al., 2011). For that reason, it is adopted in this study to account for market reactions.

Adjusted market returns refer to Adjusted market returns (Ferguson et al., 2018) that are computed over 250- day estimation window ending ten days prior to the event window (the day audit reports are released to the public) with returns on the All Ordinaries Index that proxies for market returns.

4.1. Model Specification

To investigate the moderating impact of integrated reporting on the relationship between environmental accounting and market reactions, we employ instrument variable model using the following specification;

$$y = \alpha + \beta_1 xea + \beta_2 xoy + \beta_3 xassets + \beta_4 xmbr + \beta_5 xroa + \beta_6 xlev + \varepsilon \quad (1)$$

Where y represents market reactions (share price), α is the intercept of the equation, $\beta_1\beta_2\beta_3\beta_4$ are coefficients of the regression. xea representing environment accounting, xoy represents operating income, xassets represents assets, xmbr representing market to book ratio, xlev signifying leverage or gearing ratio and ε represents the error term.

Equation 1 is that it does not take into account the moderating role of board of directors and thus leads us to develop the equations further

$$y = \alpha + \beta_1 xbod + \beta_2 xoy + \beta_3 xassets + \beta_4 xmbr + \beta_5 xroa + \beta_6 xlev + \varepsilon \quad (2)$$

Where Xbod represents the board of directors and all other variables are the same as discussed above.

This leads to the last breakdown of the last equation following the order seen below, where it takes into account the moderating impact of integrated reporting on environmental accounting and market reactions.

$$y = \alpha + \beta_1 xea + \beta_2 xbod + \beta_3 x(ea * bod) + \beta_4 xoy + \beta_5 xassets + \beta_6 xmbr + \beta_7 xroa + \beta_8 xlev + \alpha \quad (3)$$

We used assets, market to book ratio, leverage, return on assets, and operating income following(Ferguson et al., 2018)(Bandyopadhyay et al., 2014)(Davidson et al., 2004)(Chan et al., 2021)(Hossain et al., 2014) who all examined and found the above variables controlling for Market expectations in their different studies.

4.2. Additional Tests

We tested for multi-collinearity using the Pearson correlation matrix and variance influence factor as depicted in Tables 5 and 6. We also tested if our endogenous variables were truly endogenous and results are presented in Table 1 suggest that we were correct in treating our variables assets, operating income, return on assets, and leverage as endogenous variables.

Table 1: Endogenity Results for the Endogenous Variables Used

Durbin (score) chi2(1)	0.0676 (p=0.000)
Wu-Hausman F (1,1424)	0.067414 (p=0.000)

Results from Table 1 show that we were right in the usage of our endogenous variables.

We next tested for over identification to find out if our model is correct in predicting the results as seen below in Table 2. And the test results show a high p-value for both Sargan and Basmann suggesting that our model is valid and correctly specified.

Table 2: Over Identification Test

Sargan (score) chi2(1)	0.12323 (p=0.4515)
Basmann chi2(1)	0.1229 (P=0.4519)

We then carried out a test to see if our instruments are weak and test results presented below show a large value of F-statistics and high R-sq thus we reject the null hypothesis that our instruments are weak and accept the alternative hypothesis that our instruments are not weak as depicted in Table 3.

Table 3: First Test Results of the Instrument Variable under Study

Variable	R-sq	Adjusted R-sq	Partial R-sq	F(3,1423)	Prob>F
Earnings quality	0.8111	0.8105	0.8107	108.808	0.353
minimum eigen value		108.808			

5. RESULTS AND DISCUSSIONS

5.1. Descriptive Statistics

The descriptive statistics in Table 4 show the mean values of the variables under study. The environmental accounting mean is 0.9 because most of the firms in the sample size did do the accounting as it's a mandatory requirement to be listed on the Johannesburg stock exchange. They do so through an integrated report (Rensburg & Botha, 2014). The board of directors has a mean value of 0.9825 meaning that 98% of the firms sampled had a board of directors in place which is a good corporate governance skill (Khalil & Ozkan, 2016). The board of directors and accounting for the environment are presented in annual integrated reports (Rensburg & Botha, 2014) which are released annually and have an impact on share price value.

Table 4: Descriptive Statistics

	N	Mean	SD	Max	Min
EA	1428	0.9818	0.1337	1	0
BOD	1428	0.9825	0.1312	1	0
Share price	1428	2.8012	1.1435	5.4997	-0.7959
Adjusted market returns	1428	0.1029	0.7582	5.8927	-2.3010

5.2. Correlation Results

We used both the Pearson correlation matrix as seen in Table 3 and the variance influence factor in Table 5. A look at Pearson results shows that none of the variables has any value reaching 0.9 which is the cut-off point as per (Afifa et al., 2020). Multi-collinearity issue arises when two variables correlate (beta) value of more than 0.8 (Gujarati, 2003). The variables under study do not suffer from multi-collinearity issues as they are below 0.8.

Table 5: Pearson Correlation Matrix

	EA	BOD	Share price	Adjusted market returns
EA	1.0000			
BOD	0.0900	1.0000		
Share price	0.2665	0.2283	1.0000	
Adjusted market returns	0.0277	0.0191	-0.0340	1.0000

The correlation results as seen in Table 6 have results all below the correlation threshold of 0.7 as suggested by Gujarati meaning our variables do not suffer from multi-collinearity.

Table 6: VIF Results

Variable	VIF	1/VIF
EA	5.28	0.1893
BOD	5.28	0.1893
MBR	1.00	0.9983
LEV	1.00	0.9994
Mean vif	2.556	

The variance influence factor value of our variables also supports that there is no multi-collinearity issues as it is below the 5 threshold (Gujarati, 2003).

5.3. Regression Results

Results following hypothesis 1 about the impact of environmental accounting on market reactions show that environmental accounting is statistically significant 99% level. And so are operating income, assets, leverage, and the constants statistically significant with the R-sq being at 0.49. Apart from leverage which has a negative statistical significance, environmental accounting, operating income, assets, and the constants do observe a positive statistical significance.

Table 7: Results for Regression for Hypothesis 1

	Share price
EA	2.540**
	(3.20)
OY	0.0670***
	(4.04)
Assets	0.0990***
	(4.77)
MBR	-0.00204
	(-0.36)
ROA	0.00499
	(0.95)
LEV	-0.00517*
	(-2.23)
_cons	0.515*
	(2.28)
N	1424
R-sq	0.49

With equation $y = \alpha + \beta_1 Xea + \beta_2 Xoy + \beta_3 Xassets + \beta_4 Xmbr + \beta_5 Xroa + \beta_6 Xlev + \varepsilon$ .With *t* statistics in parentheses* $p <$ 0.05, ** $p < 0.01$, *** $p < 0.001$.

The results seem to suggest that an increase in environmental accounting is associated with a 2.5 times change in market reactions which suggests that markets pay close attention to environment matters. And that market reactions bring about 1% change in operating income and assets.

Table 8: Regression Results for Hypothesis 2

	Share price	**Share price**	**Share price**
EA	1.629***		0.900*
	(7.17)		(2.29)
OY	0.0659***	0.0706***	0.0701***
	(3.98)	(4.25)	(4.30)
Assets	0.0983***	0.104***	0.0755***
	(4.75)	(5.02)	(3.66)
MBR	-0.00197	-0.000864	-0.00289
	(-0.34)	(-0.15)	(-0.51)
ROA	0.00499	0.00504	0.00426
	(0.95)	(0.96)	(0.83)
LEV	-0.00519*	-0.00509*	-0.00538*
	(-2.24)	(-2.18)	(-2.36)
BOD		1.287***	0.245
		(5.99)	(0.68)
BOD*EA			0.803***
			(7.36)
_cons	0.456*	0.743***	0.302
	(2.15)	(3.66)	(1.42)
N	1424	1424	1424
R^2	0.49	0.495	0.51

Table 8 shows regression results of hypothesis 2 with *t* statistics in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. The table shows that environment accounting drop significance from 95% to 90% in relation to market reactions.

When hypothesis 2 is considered, Environmental accounting stays positive and statistically significant at 90% confidence interval. The board of directors is also statistically significant and so are operating income, assets, leverage, and constants at an R-sq of 0.51. For every increase in share price, there is an increase in board participation (Khalil & Ozkan, 2016). it's worth noting though that when the board of directors is introduced as a moderator, the relationship between environmental accounting takes a turn as environmental accounting loses part of its earlier statistical significance

5.4. Discussions

Environmental accounting is founded on the back of legitimacy theory. For a firm to exist in continuity, it must do so in conjunction with societal norms and values (Suchman, 1995). Otherwise, the society through the market pays attention to the workings of the firm(Connelly et al., 2011) and from there decide on how to act either through reputational damage or not buying its assets on the stock exchange (Grossman & Miller, 1988).

Firms are citizens of the society in which they reside(Campbell, 2013) and as such are mandated to take care of the environment in which they operate. This helps to serve the interests of all stakeholders. The market is more concerned with the risk outlook of the firms invested in (Campbell, 2013), and where the environmental risk is potentially significant, a report is needed to discuss how the firm is going about the risk mitigation process.

Firms that do carry out environmental accounting have been found to be profitable(Budiono & Dura, 2021). This is because markets reward firms that do take care of society as responsible citizens(Campbell, 2013). Usually, firms do environmental accounting to protect their image(Budiono & Dura, 2021) as the fear of a fallout with environmentally conscious investors will lead to reputational damage and a loss in value of its assets and firm performance(Jean-paul louisot, Sophie Gaultier, 2009). Firms are now increasingly becoming more conscious of environmental accounting(Kabir & Akinnusi, 2012).

Even after controlling for firm specifics like in Nigeria(Che Ahmad et al., 2015), environmental accounting was found to improve firm profitability. The improved profitability sends a signal(Connelly et al., 2011) to the market about the welfare of the firm which translates to higher asset values for the firm. This explains the significant relationship between environmental accounting and market reactions in our study as also seen by(Rachael, 2020).

The leadership of the firm specifically the board of directors is so crucial in promoting and supervising environmental accounting (Hutman falih Chichan et al., 2021). They do so by providing the leadership necessary to carry out environmental management accounting which foresees environmental disclosures and decisions related to the protection of the environment. They need to be independent to carry out their duties(Khalil & Ozkan, 2016). In doing so, they act as a bridge between environmental accounting and markets through the signaling effect. This relationship can explain why in our study; the board of directors has got a statistically significant relationship with market reactions.

(Rachael, 2020) suggests that firms do environmental accounting for the sake of corporate benefits and good reputational nudge and cost reduction. This means that paying attention to environmental accounting is also paramount to the survival, growth, and good performance of a firm (Şimşek & Öztürk, 2021). As markets now pay more attention to environmental accounting and sustainability reports(Asuquo et al., 2018)(Che Ahmad et al., 2015)(Şimşek & Öztürk, 2021).

Table 9: Robustness Checks of Hypothesis 1

	Adjusted market returns
EA	0.585***
	(3.76)
OY	-0.00940
	(-0.83)
Assets	-0.0986***
	(-6.95)
MBR	0.0116**
	(2.96)
ROA	-0.000300
	(-0.08)
LEV	-0.00261
	(-1.64)
_cons	0.0586*
	(0.40)
N	1424
R-sq	0.57

Following the equation $y = \alpha + \beta_1 Xea + \beta_2 Xmbr + \beta_3 Xlev + \varepsilon$ .With *t* statistics in parentheses* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ and using adjusted market returns as a proxy for market reactions.

Table 10: Robustness Check for Hypothesis 2

	Adjusted market returns	Adjusted market returns	Adjusted market returns
EA	0.585***		0.863**
	(0.156)		(0.274)
OY	-0.00940	-0.00704	-0.00974
	(0.0114)	(0.0114)	(0.0114)
Assets	-0.0986***	-0.0937***	-0.0964***
	(0.0142)	(0.0142)	(0.0144)
MBR	0.0116**	0.0121**	0.0116**
	(0.00392)	(0.00393)	(0.00393)
ROA	-0.000300	-0.000242	-0.000246
	(0.00360)	(0.00361)	(0.00360)
LEV	-0.00261	-0.00254	-0.00259
	(0.00159)	(0.00159)	(0.00159)
BOD		0.349*	-0.297
		(0.147)	(0.252)
BOD*EA			-0.0329
			(0.0762)
_cons	0.0586	0.256	0.0966
	(0.146)	(0.139)	(0.149)
N	1424	1424	1424
R^2	0.57	0.51	0.58

Table 10 shows the robustness check of regression results of hypothesis 2 with Standard errors in parentheses* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. This was done to find out if our study is viable by using another proxy of market reactions called adjusted market returns.

The results from the robustness checks support our study in that it shows that indeed, environment accounting does affect market reactions even when we use an alternative proxy for market reactions. Furthermore, it supports the novelty raised that the board of directors moderates the relationship between environment accounting and market reactions.

6. CONCLUSION AND RECOMMENDATION

The study was carried out to investigate the impact of environmental accounting on market reactions in Africa. Moreover the moderating impact of the board of directors on the same relationship. The sample selected was South Africa because it has the best-developed stock markets, is a strong emerging economy in the BRICS, and is the second-largest economy in Africa with well-developed regulations and a rule of law.

We find that other things being equal, environmental accounting has an impact on market reactions, and the board of directors moderates the relationship. Results of the relationship between environmental accounting and market reactions are statistically significant and so was the moderating impact of the board of directors. Even after controlling for effects of market reactions with other control variables

Our study was subject to some limitations such as lack of data as not all firms had the data needed for the period of the study. Second, our measure of environmental accounting is subjective and prone to measurement errors. Finally, the study is centered around Africa and South Africa in particular and may not apply to other countries in the world.

The study has three contributions despite the limitations, 1) it supports the stakeholder theory by showing the moderating impact of the board of directors on environmental accounting and market reactions. (2) It goes on to show if the markets in South Africa are woke in the sense that they do care about the activities of any business that operates within their sphere. This is good leverage in the hands of consumers as it makes companies and businesses think of the wider impacts apart from profits. And (3) it shows how South Africa has awakened to the global call to companies to do account for the environment and the society they live in as citizens. This implies that companies and businesses are taking the frontline in the fight against climate change.

We recommend studying research into the impact of social-psychological effects on environmental accounting by listed firms. And that firms should take the lead in ensuring the UN set goals of environmental sustainability by 2030 but they need regulations from regulators and governments.

REFERENCES

AMPS. (2011). Community survey. In The South African all media and products survey via Eighty20. Retrieved from http://www.eighty20.co.za/databases/index.cgi

Afifa, M. A., Alsufy, F., & Abdallah, A. (2020). Direct and mediated associations among audit quality, earnings quality, and share price: The case of Jordan. *International Journal of Economics and Business Administration*, *8*(3), 500–516. https://doi.org/10.35808/ijeba/540

Asuquo, A. I., Esther Temitayo, D., & Udonna Raphael, O. (2018). *The Effect of Sustainability Reporting on Corporate Performance of Selected Quoted Brewery Firms in Nigeria*. *6*(3), 1–10. www.seahipaj.org

Bandyopadhyay, S. P., Chen, C., & Yu, Y. (2014). Mandatory audit partner rotation, audit market concentration, and audit quality: Evidence from China. *Advances in Accounting*, *30*(1), 18–31. https://doi.org/10.1016/j.adiac.2013.12.001

Budiono, S., & Dura, J. (2021). The Effect Of Green Accounting Implementation On Profitability In Companies Compass Index 100. *International Journal of Educational Research & Social Sciences*, 1526–1534.

Burlea-schiopoiu, A., & Popa, I. (2013). Legitimacy theory. *Encyclopedia of Corporate Social Responsibility*, *January 2013*. https://doi.org/10.1007/978-3-642-28036-8

Campbell, D. (2013). *ACCA technical article* (Vol. 7). Technical-articles-in-students-Accountant.html

Chan, D. K., Li, X., & Xin, Q. (2021). Institutional investor inattention and audit quality. *Journal of Accounting and Public Policy*, *40*(3). https://doi.org/10.1016/j.jaccpubpol.2021.106857

Che Ahmad, A., Osazuwa, N., & Mgbame, C. (2015). Environmental Accounting and Firm Profitability in Nigeria: Do Firm-Specific Effects Matter? *IUP Journal of Accounting Research & Audit Practices*, *14*(1), 43.

Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management*, *37*(1), 39–67. https://doi.org/10.1177/0149206310388419

Davidson, W. N., Xie, B., & Xu, W. (2004). Market reaction to voluntary announcements of audit committee appointments: The effect of financial expertise. *Journal of Accounting and Public Policy*, *23*(4), 279–293. https://doi.org/10.1016/j.jaccpubpol.2004.06.001

Ferguson, A., Lam, P., & Ma, N. (2018). Market reactions to auditor switches under regulatory consent and market driven regimes. *Journal of Contemporary Accounting and Economics*, *14*(2), 197–215. https://doi.org/10.1016/j.jcae.2018.05.001

Grossman, S. J., & Miller, M. H. (1988). Liquidity and Market Structure. *The Journal of Finance*, *43*(3), 617–633. https://doi.org/10.1111/j.1540-6261.1988.tb04594.x

Hossain, M., Mitra, S., & Rezaee, Z. (2014). Voluntary disclosure of reasons for auditor changes and the capital market reaction to information disclosure. *Research in Accounting Regulation*, *26*(1), 40–53. https://doi.org/10.1016/j.racreg.2014.02.004

Hutman falih Chichan, Hussein kareem mohammed, & Tariq Tawfeeq Yousif Alabdullah. (2021). Does Environmental Management Accounting Matter in Promoting Sustainable Development? A study in Iraq. *Journal of Accounting Science*, *5*(2), 114–126. https://doi.org/10.21070/jas.v5i2.1543

Jean-paul louisot, Sophie Gaultier, J. R. (2009). managing reputational risk- from theory to practice. *Reputation Capital: Building and Maintaining Trust in the 21st Century*, *July 2009*, 1–408. https://doi.org/10.1007/978-3-642-01630-1

Kabir, H., & Akinnusi, D. M. (2012). Corporate social and environmental accounting information reporting practices in Swaziland. *Social Responsibility Journal*, *8*(2), 156–173. https://doi.org/10.1108/17471111211234699

Khalil, M., & Ozkan, A. (2016). Board Independence, Audit Quality and Earnings Management: Evidence from Egypt. *Journal of Emerging Market Finance*, *15*(1), 84–118. https://doi.org/10.1177/0972652715623701

Makarenko, I., & Plastun, A. (2017). The role of accounting in sustainable development. *Accounting and Financial Control*, *1*(2), 4–12. https://doi.org/10.21511/afc.01(2).2017.01

Maroun, W., & Atkins, J. (2015). The Challenges of Assuring Integrated Reports : Views from the South African Auditing Community. *ACCA (Association of Chartered Certified Accountants)*, 1–20.

Maubane, P., Prinsloo, A., & Van Rooyen, N. (2014). Sustainability reporting patterns of companies listed on the Johannesburg securities exchange. *Public Relations Review*, *40*(2), 153–160. https://doi.org/10.1016/j.pubrev.2014.02.014

Rachael, O. (2020). Environmental Accounting Practices and Corporate Performance: Study of Listed Oil and Gas Companies in Nigeria. *European Journal of Business and Management*, *September*. https://doi.org/10.7176/ejbm/12-22-08

Ramachandran, R. (2020). Theories of Stakeholder Management. *SSRN Electronic Journal*, *January 2019*. https://doi.org/10.2139/ssrn.3535087

Rensburg, R., & Botha, E. (2014). Is Integrated Reporting the silver bullet of financial communication? A stakeholder perspective from South Africa. *Public Relations Review*, *40*(2), 144–152. https://doi.org/10.1016/j.pubrev.2013.11.016

Samy, M. (2019). The Impact of Integrated Reporting on Firm Value and Performance : Evidence from Egypt The impact of integrated reporting on firm value and performance : Evidence from Egypt Mohamed Samy El-Deeb Associate professor of accounting Faculty of Management Scie. *Accounting Research Journal*, *3*(2), 1–33. https://scholar.archive.org/work/bd2cs6insve6zd22a4hxn5luoy/access/wayback/https://aljalexu.journals.ekb.eg/article_56831_89dec7452dbbcfaa459a32ca552d7a08.pdf

Şimşek, H., & Öztürk, G. (2021). Evaluation of the relationship between environmental accounting and business performance: the case of Istanbul province. *Green Finance*, *3*(1), 46–58. https://doi.org/10.3934/gf.2021004

Suchman, M. C. (1995). Managing Legitimacy: Strategic and Institutional Approaches. *The Academy of Management Review*, *20*(3), 571. https://doi.org/10.2307/258788

Tan OScario Archie, Frank. G. (2021). Effects of accounting tools on social and environmental accounting 1. *Diponegoro Journal of Accounting*, *10*, 1–7.

Traxler, A. A., Schrack, D., & Greiling, D. (2020). Sustainability reporting and management control – A systematic exploratory literature review. *Journal of Cleaner Production*, *276*, 122725. https://doi.org/10.1016/j.jclepro.2020.122725