

# Does The Quality Of Environmental Disclosure Depend On Firm Performance: Evidence From Emerging Market

Shahbaz Babar Khan<sup>1</sup>; Najul Laskar<sup>\*2</sup>; Khalada Sultana Choudhury<sup>3</sup>

<sup>1</sup>*Department of Management, Lead College of Management, Kerela.*

<sup>2\*</sup>*School of Business- Core Cluster, UPES University. (Corresponding Author)*

<sup>3</sup>*Department of Management, North Eastern Hill University- Tura Campus.*

## Abstract:

The main purpose of the study is to examine the impact of firm performance on the quality of environmental disclosure in the context on BSE 200 index for the study of six years i.e., 2016-2021. The study is based on secondary data collected from published environmental reports and annual reports. We have used manual content analysis technique to calculate the disclosure using GRI reporting framework. This score is later used in the regression model to explore the impact of market-to-book ratio (proxy for firm performance) on the quality of environmental disclosure. Based on the panel data model, we have found that firm performance plays a crucial role in influencing the quality of disclosure in the positive direction.

**Keywords:** Quality of environmental disclosure; GRI reporting framework; BSE 200 index; Market-to-book ratio.

## I. Introduction:

This study aims to explore the relationship between the level of environmental performance (EP) and the financial performance of businesses in India. The results of more than three decades of theoretical and empirical study on the relationship between the EP and financial performance of organisations are still ambiguous (Angelo & Cudia, 2011; Horvathova, 2010; Plumlee et al., 2015). According to the new classical theory, improvements in EP result in higher costs and lower net marginal gains since they need sizable investments and changes to current processes to minimise pollution and energy consumption (Horvathova, 2010; Walley & Whitehead, 1994). This supports the "cost-concern school" which claim that environmental improvement is motivated by a concern for an increased cost that would lead to decreasing profitability as well value of the firm (Hassel et al., 2005) which calls for negative association between company

financial performance and EP. Numerous academics have observed empirically a negative relationship between the EP and financial performance (Cordeiro & Sarkis, 1997; Freedman & Jaggi, 1992; Hassel et al., 2005; Ho & Taylor, 2007; Smith et al., 2007).

Porter (1991), on the other hand, is a proponent of the idea that environmental development is linked to increases in both social welfare and business success. Environmental initiatives are seen as a tool by the value creation school to boost competitive advantage and boost financial performance (Hassel et al., 2005). This is founded on the justification that disclosures on social and environmental issues show a company's commitment to the environment and society. It enables businesses to establish and maintain positive relationships with a broad range of stakeholders, lowers the risk of a boycott by legitimising their commercial endeavours in society, aids in the effective use of limited resources, boosts profits by tapping into

socially or environmentally conscious markets, draws socially conscious capital, and ultimately results in value maximisation. Numerous studies have found an empirical link between the financial performance and EP (Albertini, 2013; Hart & Ahuja, 1996; Hidemichi et al., 2012; Konar & Cohen, 2001; Moneva & Ortas, 2010; Plumlee et al., 2015; Russo & Fouts, 1997). However, some scholars (Earnhart & Lizal, 2007; Wagner, 2005) have been unable to separate any distinct connection between the two. Thus, it creates a gap in the literature. Hence, the present study is a modest attempt to explore the impact of firm performance on EP disclosure in the context of Indian listed companies.

The remaining part of the paper is organised as follows: section 2 deals with literature review and hypothesis development; section 3 deals with research design; section 4 devoted to results and findings; section 5 is for implication followed by conclusion and future research agenda in section 6.

## **2. Literature Review and Hypothesis Development**

Numerous scholars have examined the impact of corporate EP on financial performance using EP as the explanatory variable. In the instance of S&P 500 companies, Hart and Ahuja (1996) show proof that reducing emissions improves business performance. Stanwick and Stanwick (2000) and Russo and Fouts (1997) also found that EP has a beneficial effect on American firms' performance. According to Konar and Cohen (2001), lowering emissions of hazardous chemicals enhances business performance. Wagner et al. (2002) and Moneva and Ortas (2010) empirically observe beneficial effects of EP and financial performance in the context of European firms. Hidemichi et al. (2012) also confirm a beneficial effect of EP on firm performance in the instance of Japan. Plumlee et al. (2015) conclude that environmental disclosure has a favourable effect on business value using the Global Reporting Initiatives (GRI) principles. Albertini (2013) reveals the

beneficial effect of EP on business performance through a study of 52 papers.

However, other studies have actually shown that EP has a detrimental impact on the performance of businesses. The empirical results of Freedman and Jaggi (1992), Hassel et al. (2005), Smith et al. (2007), and Ho and Taylor (2007) might be mentioned in this regard. On the other hand, in certain instances, studies discover a negligible impact of EP on financial performance. According to Rockness et al. (1986), it is impossible to separate any meaningful effects of EP on the financial results of US enterprises. The results are in line with research from Korea's Choi (1999), India's Sahay (2004), and Japan's Angelo and Cudia (2011).

Researchers also note mixed outcomes when using EP as the indicator of business success. When Baalouch et al. (2019) looked at the impact of numerous variables on the calibre of environmental disclosure for French-listed firms, they found that financial success had a sizable beneficial impact. Suttipun and Stanton (2012), in contrast, discover a strong negative effect of financial success on the environmental disclosure in the case of Thai enterprises. Contrarily, several researches find that financial performance has no impact on the EP. Sulaiman et al. (2004) found no discernible relationship between profitability and the calibre of environmental reporting in the setting of Malaysian businesses or in the case of businesses in the Arab Middle East and North Africa. Jariya (2015) found comparable outcomes while studying Sri Lanka. Welbeck et al. (2017)'s findings in Ghana show that the EP's relationship with financial success is negligible. Malarvizhi and Matta (2016) also show that profitability has little to no impact on environmental disclosure in India. Additionally, according to Zamil and Hassan (2019), greenhouse gas emissions have a favourable and considerable influence on financial performance.

The above review of literature relating to EP and financial performance

clearly indicates the mixed findings. However, according to KPMG reports, corporate environmental disclosure plays a significant role in influencing the firm performance. In other words, a company that has a strong financial performance would work to keep that position over time by addressing the concerns of stakeholders and the demands of society. As a result, the corporation with good performance is expected to provide more social and EP data. Al-Tuwaijri et al. look at this reciprocal relationship between the EP and financial performance (2004). Although, many studies were already taken place by exploring the impact of disclosure on firm performance but there are only handful of studies that explored the impact of firm performance on EP disclosure. Thus, the following hypothesis is formulated for empirical testing:

H1: There is a positive impact of between the quality of firm performance on environmental disclosure

### 3. Research Design

#### 3.1. Sample, source of data and study period

This study is based on secondary data collected from the published annual report and environmental report of top 200 BSE (Bombay Stock Exchange) companies. The study period is 6 years from 2016 to 2021.

#### 3.2. Variables used

The dependent variable of the study is EP disclosure. EP disclosure of each sample company for each year is calculated by using content analysis techniques based on GRI reporting framework (i.e., G4). In G4 reporting framework, there are 34 different types of environment related indicators which is important for every firm to disclose. To calculate the quality disclosure of EP, four-point scale is used, i.e., '0' for no disclosure, '1' partly disclosure, '2' for descriptive disclosure without clarity and '3' for full disclosure objectively and clearly). The final

score for each sample firm for each year will be calculated as under:

EP disclosure score = {Total indicators disclosed by the firm in a year divided by total possible disclosure in each year (which is 34 indicators \* 3 maximum score)} multiply by 100.

After obtaining the disclosure scores, these scores will be used for analysing the impact of firm performance on such disclosure score.

The independent variable of the firm is market to book ratio (MBR) as the proxy for corporate financial performance (Lo & Sheu, 2007; Ortas et al., 2015). It is defined as market value of equity divided by book value of equity. The control variables used in this study are firm size (SIZE), return on assets (ROA), and financial leverage (LEV). The natural log of the total assets serves as a proxy for firm size. The definition of ROA is the ratio of net profit to total assets, while the ratio of debt-to-equity capital is used to gauge leverage.

#### 3.3. Empirical Model:

We would assume that organisations' environmental disclosure and financial success typically depend not just on the explanatory variables' present values but also on their past values. As a result, we use the following model by including a lagged dependent variable in addition to the covariates:

$$EP_{it} = \beta_0 + \beta_1 EP_{it-1} + \beta_2 MBR_{it} + \beta_3 ROA_{it} + \beta_4 SIZE_{it} + \beta_5 LEV_{it} + \varepsilon_{it} \dots \dots \dots Model (1)$$

Here,  $\beta_0$  is the time invariant intercept of each firm and  $\varepsilon_{i,t}$  is the error component.

### 4. Results and Discussion

Table 1 reveals the descriptive analysis of variables used in the study. The table shows that the mean value of EP is 0.8539 which indicates that the sample firms have disclosed almost 85% of the GRI specified items. The minimum value is 0.7003 and maximum value is 0.9302 which indicates that there is less inconsistency in the quality disclosure of

environment related information. The tables further reveals that the average value of MBR is 18.0201 which indicates that the market value of the sample firm is 18 times of the book value that is quite favourable. The skewness value is also less than 1 indicating symmetric distribution of the data. In case of ROA, we find that the minimum value is -

0.0133 which gives an indication that there are few loss-making companies are also present in the sample data in which majority are profit making. Moreover, there is negatively skewed distribution for ROA. In case of LEV, we notice that there are few firms in the sample whose debt are 6 times of their equity indicating high debt.

**Table 1: Descriptive Statistics**

Variables	Minimum	Maximum	Mean	Skewness
<b>EP</b>	0.7003	0.9302	0.8539	0.7231
<b>MBR</b>	11.3930	21.0303	18.0201	0.8132
<b>ROA</b>	-0.0133	0.7030	0.9840	-1.9392
<b>SIZE</b>	8.2939	17.0304	13.0403	-1.3922
<b>LEV</b>	0.0201	6.4922	0.9343	1.3943

**Note:** N = 1200

**Source:** Authors computation

Table 2 reveals the correlation matrix. It is very necessary to identify any potential high degree correlation among the independent variables. Any regression model having high degree of correlation among independent variables violates the basic assumption of regression that that absence of high degree multi-collinearity among independent variables. The table 2 clearly reveals that the

independent variables are having correlations, but the severity is much less. For instance, the correlations between MBR and ROA, MBR and SIZE as well as MBR and LEV are 0.0123, 0.2321 and 0.0143 respectively, that indicates low degree positive correlation exists between MBR and ROA, MBR and SIZE as well as MBR and LEV.

**Table 2: Correlation Matrix**

Variables	EP	MBR	ROA	SIZE	LEV
<b>EP</b>	1				
<b>MBR</b>	0.4233	1			
<b>ROA</b>	0.2493	0.0123	1		
<b>SIZE</b>	0.3913	0.2321	0.1240	1	
<b>LEV</b>	0.0231	0.0143	-0.1312	-0.0021	1

**Source:** Authors computation

Table 3 deals with the regression results. The table 3, shows that the impact of MBR on quality of environmental disclosure is positive and statistically significant 1% in case of fixed effect model and at 10% level in case of random effect model. The positive impact of firm performance (MBR) on the quality of environmental disclosure indicates that the firm with a higher market value tends to

influence the quality of disclosure in the positive direction which is consistent with the study of Baalouch et al. (2019). Among the control variables, we found that the coefficient of ROA is also positive and statistically significant at 5% level respectively for both the regression models, i.e., random effect model and fixed effect model. The positive impact of ROA indicates that the profitable

firms tend to disclose more quality disclosure in order to avoid any sort of retaliation from the marks and to maintain market positioning. We have also noticed that the firm size is also plays a crucial role in influencing the quality of environmental disclosure. Among the sample firms, almost all

the firms are of big size and these firms tends to disclose more quality information because they tend to maintain their image in the market and attract more investors. The significance of F-Stats in caseof both the models thus favours the goodness of fit for both the model. Hence, we accept our hypothesis (H1).

**Table 3: Impact of EP on MBR**

Variables	Fixed-Effects Model		Random-Effects Model	
	Coeffic.	t-stats.	Coeffic.	t-stats.
Cons.	7.0182	2.1932***	4.0321	1.3921***
MBR	0.4033	0.2839***	0.3928	0.1023*
ROA	0.0298	0.7264**	0.5039	1.0202**
SIZE	1.3505	2.0323***	2.9382	2.0294***
LEV	-0.1300	-0.0112	-1.0183	-0.21032
Adj. R <sup>2</sup> = 0.54; F-stat. = 10.8382***			F-stat. = 20.1932***	
<b>Breuch-Pagan Test:</b> Chi-square: 19.0203***			<b>Breuch-Pagan Test:</b> Chi- square: 12.8273***	
<b>Hausman Test:</b> Chi-square: 10.0292***			<b>Hausman Test:</b> Chi-square: 14.03911	

**Notes:** Dependent variable – EP; \*\*\*and \*\* indicate significant at 1% and 5% level.

**Source:** Authors Computation

## 5. Implication of the study

In the present study, market-to-book ratio is used as proxy for firm performance. The higher the value of market-to-book ratio, the better the performance of the company, since the increased ratio means a good management performance in managing the sources effectively to generate net income, to attract more investment, to improve stakeholders' expectations etc. Higher market-to-book ratio indicates better financial performance of the company to its stakeholders, and consequently, the stakeholders will encourage companies to make more positive contributions and report all of its sustainability activities transparently into a more detailed and completed sustainability disclosure which also includes environmental disclosure. In the present study, we also noticed that the impact of firm performance on environmental disclosure is positive and significant. According to the KPMG report, such disclosure brings benefit

to the company in the form of better relationship with stakeholder, improved market efficiency, attract ethical investments, boosts employee morale etc. Thus, the outcome of the study may motive the corporate managers having better market performance to disclose more environmental related information and such disclosure as per the KPMG survey report will ultimately help companies to improve stakeholders' relationship, will strengthen companies legitimacy, improve efficiency of the employee etc.

## 6. Conclusion and Future Research Agenda

The present study is a modest attempt to investigate the impact of firm performance on the quality of environmental disclosure in the context of BSE 200 index for a study period of six years, i.e., 2016-2021. Employing panel data model, we have found that high market

performance (MBR) plays a very crucial role in enhancing the quality of environmental disclosure. However, the outcomes may motivate other firms (less profitable firms) as well to disclose more quality environmental disclosure. Supporting the signalling theory, the outcomes of this study show that organisations with high firm performance as assessed by MBR voluntarily released more of all information categories to stakeholders. According to the agency hypothesis, this is done to resolve information asymmetries and agency concerns. Furthermore, the transaction cost hypothesis states that a successful corporation would be inclined to exhibit a good performance to minimise circumstances in interactions with stakeholders.

There are limitations in the empirical measures of this literature on the scope of target population in which only BSE 200 companies are studied. Additionally, environmental disclosures are based on environmental reports only. Information from other sources is not studied. Those interested in voluntary disclosure may use this research as a guidance to study quality disclosure in large sample groups, as well as data from other sources may be studied such as information on internet, to draw a comparison to that from environmental reports.

## References:

1. Albertini, E. (2013). Does environmental management improve financial performance? A meta-analytical review. *Organization & Environment*, 26(4), 431–457, <https://doi.org/10.1177/1086026613510301>.
2. Al-Tuwaijri, S., Christensen, T. E., & Hughes, K. E., II. (2004). The relations among environmental disclosure, environmental performance, and economic performance: A simultaneous equations approach. *Accounting, Organizations and Society*, 29(5–6), 447–471, [https://doi.org/10.1016/S0361-3682\(03\)00032-1](https://doi.org/10.1016/S0361-3682(03)00032-1).
3. Angelo, C., & Cudia, C. (2011). Sustainability and firm performance: A case study of Japanese electronics companies. *Ritsumeikan International Affairs*, 10(1), 321–340.
4. Baalouch, F., Ayadi, S. D., & Hussainey, K. (2019). A study of the determinants of environmental disclosure quality: Evidence from French listed companies. *Journal of Management and Governance*, 23(4), 939–971, <https://doi.org/10.1007/s10997-019-09474-0>
5. Choi, J. (1999). An investigation of the initial voluntary environmental disclosures made in Korean semi-annual financial reports. *Pacific Accounting Review*, 11(1), 73–102.
6. Cordeiro, J. J., & Sarkis, J. 1997. Environmental proactivism and firm performance: Evidence from security analyst earnings forecasts. *Business Strategy and the Environment*, 6(2), 104–114, [https://doi.org/10.1002/\(SICI\)1099-0836](https://doi.org/10.1002/(SICI)1099-0836).
7. Earnhart, D., & Lizal, L. (2007). Does better environmental performance affect revenues, cost, or both? Evidence from a transition economy, William Davidson Institute Working Papers Series wp 856, William Davidson Institute, University of Michigan.
8. Freedman, M., & Jaggi, B. (1992). An investigation of the long-run relationship between pollution performance and economic performance: The case of pulp and

- paper firms. *Critical Perspectives on Accounting*, 3(4), 315–336, [https://doi.org/10.1016/1045-2354\(92\)90024-L](https://doi.org/10.1016/1045-2354(92)90024-L).
9. Hart, S. L., & Ahuja, G. (1996). Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance. *Business Strategy and the Environment*, 5(1), 30–37, [https://doi.org/10.1002/\(SICI\)1099-0836\(199603\)5](https://doi.org/10.1002/(SICI)1099-0836(199603)5)
  10. Hassel, L., Nilsson, H., & Nyquist, S. (2005). The value relevance of environmental performance. *European Accounting Review*, 14(1), 41–61, <https://doi.org/10.1080/0963818042000279722>.
  11. Hidemichi, F., Kazuyuki, I., Shinji, K., & Shunsuke, M. (2012). Corporate environmental and economic performances of Japanese manufacturing firms: Empirical study for sustainable Development. *Business Strategy and the Environment*, 22(3), 187–201, <https://doi.org/10.1002/bse.1747>.
  12. Ho, L. J., & Taylor, M. E. (2007). An empirical analysis of triple bottom-line reporting and its determinants: Evidence from the United States and Japan. *Journal of International Financial Management and Accounting*, 18(2), 123–150, <https://doi.org/10.1111/j.1467-2007.01010.x>.
  13. Horvathova, E. (2010). Does environmental performance affect financial performance? A meta-analysis. *Ecological Economics*, 70(15), 52–59, <https://doi.org/10.1016/j.ecolecon.2010.04.004>.
  14. Jariya, A. M. I. (2015). Determinants of environmental disclosure in annual reports of Sri Lankan listed manufacturing companies. *Journal of Management*, 12(1), 99–112, <http://ir.lib.seu.ac.lk/handle/123456789/1772>
  15. Konar, S., & Cohen, M. A. (2001). Does the market value environmental performance? *Review of Economics and Statistics*, 83(2), 281–289, <http://dx.doi.org/10.1162/00346530151143815>.
  16. Malarvizhi, P., & Matta, R. (2016). “Link between corporate environmental disclosure and firm performance” – Perception or reality? *Review of Integrative Business and Economics Research*, 5(3), 1–34.
  17. Moneva, J. M., & Ortas, E. (2010). Corporate environmental and financial performance: A multivariate approach. *Industrial Management & Data Systems*, 110(2), 193–210, <https://doi.org/10.1108/02635571011020304>.
  18. Plumlee, M., Brown, D., & Marshall, R. S. (2015). Voluntary environmental disclosure quality and firm value: Further evidence. *Journal of Accounting and Public Policy*, 34(4), 336–361, <http://dx.doi.org/10.1016/j.jaccpubpol.2015.04.004>.
  19. Porter, M. (1991). America’s green strategy. *Scientific American*, 264(4), 168.
  20. Rockness, J., Schlachter, P., & Rockness, H. O. (1986). Hazardous waste disposal, corporate disclosure, and financial performance in the chemical industry. In M. Neimark (Ed.), *Advances in public interest*

- accounting (Vol. 1, pp. 167–191). JAI Press.
21. Russo, M. V., & Fouts, P. A. (1997). A resource-based perspective on corporate environmental performance and profitability. *Academy of Management Journal*, 40(3), 534–559, <http://dx.doi.org/10.2307/257052>.
  22. Sahay, A. (2004). Environmental reporting by Indian corporations. *Corporate Social Responsibility and Environmental Management*, 11(1), 12–22, <http://dx.doi.org/10.1002/csr.51>.
  23. Smith, M., Yahya, K., & Amiruddin, A. M. (2007). Environmental disclosure and performance reporting in Malaysia. *Asian Review of Accounting*, 15(2), 185–199, DOI 10.1108/13217340710823387.
  24. Sulaiman, M., Nik-Ahmad, N. N. & Mohd-Alwi, N. (2004). Management accounting practices in selected Asian countries: A review of the literature. *Managerial Auditing Journal*, 19(4), 493–508, DOI: 10.1108/02686900410530501.
  25. Suttipun, M., & Stanton, P. (2012). A study of environmental disclosures by Thai listed companies on websites. *Procedia Economic and Finance*, 2, 9–15, [https://doi.org/10.1016/S2212-5671\(12\)00059-7](https://doi.org/10.1016/S2212-5671(12)00059-7).
  26. Wagner, M. (2005). Sustainability and competitive advantage: Empirical evidence on the influence of strategic choices between environmental management approaches. *Environmental Quality Management*, 14(3), 31–48, <http://dx.doi.org/10.1002/tqem.20046>.
  27. Walley, N., & Whitehead, B. (1994). It's not easy being green. *Harvard Business Review*, 72(3), 46–52.
  28. Welbeck, E. E., Owusu, G. M. Y., & Bekoe, R. A. (2017). Determinants of environmental disclosures of listed firms in Ghana. *International Journal of Corporate Social Responsibility*, 2(11), 2–12, <http://dx.doi.org/10.1186/s40991-017-0023-y>.
  29. Zamil, G. M. S., & Hassan, Z. (2019). Impact of environmental reporting on financial performance: Study of global Fortune 500 companies. *Indonesian Journal of Sustainability Accounting and Management*, 3(2), 109–118, <https://doi.org/10.28992/ijsam.v3i2.78>.