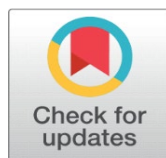
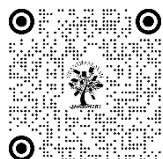


MARKET CAPITALIZATION AND ITS RELATIONSHIP WITH ESG SCORE

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ABSTRACT

Sustainability Reporting is used to rank the company based on its performance. The ranking is done on three bases namely Environmental Score, Societal Score and Governance Score. In Environmental Score, the company's performance is measured with respect to its initiatives in maintaining the balance between environmental and company. When it comes to Societal Score, the societal contributions of company are measured. Lastly under the umbrella of Governance Score, the performances of company with respect to corporate governance policies are analyzed. Apart from this, a companies' performance can also be estimated with the help of Market Capitalization. Market Capitalization also known as Market Cap, is used to know the financial performance of the company. The main objective is to link Market Capitalization with ESG Score. In this research article, the relationship between Environmental Score, Social Score, Governance Score, and ESG Score with Market Capitalization is brought under study. With the help of Correlation, regression and predictor analysis, the most dominant predictor is evaluated.

Keywords: Market Capitalization, Environmental Score, Social Score, Governance Score and ESG Score.



1. INTRODUCTION

1. Alsayegh, M. F., Rahman, R. A., & Homayoun, S. (2020):
Sustainability Reporting means a type of reporting where complete disclosure of level of sustainability of company is revealed. These days the sustainability issue is very important. Due to regular climate change, increase in temperature, depletion of resources and other habitable situations sustainability reporting has become most important for companies. There are many uses of sustainability reporting. One major use is the generation of potential investors. As the aspect of sustainability is getting more popularized, the number of stakeholders getting interested in company's shares is more. This makes sustainability reporting more important.
2. Boffo, R., & Patalano, R. (2020):
Each and every style of reporting has undergone different evolutionary steps. Similarly sustainability reporting has also evolved depending upon the situations and factors that were considered. Major evolutionary step with respect to sustainability reporting was to frame a better evaluating model which can not only satisfy the objectives of the industries but also the notion of sustainability from environmental and ecology point of view.
3. Barker, R., & Eccles, R. G. (2019):
Any kind of standards setting depends upon a thorough knowledge of the existing situation and past events with futures expectations. If all this is taken into account then the making of model can be done by any authority.

- Source of Sustainability Reporting:
- 4. López, M. V., A. Garcia, and L. Rodriguez. (2007):
Dow Jones sustainability index is an index which measures the level of sustainability of any entity with respect to corporate performance. This index is considered as a benchmark by investors and companies. This index is used as a source of generating sustainability reporting and ESG Score.
- Adoption of Sustainability Reporting:
- 5. Chen, S., Han, X., Zhang, Z., & Zhao, X. (2023):
Sustainability Reporting has also been adopted not only in India but also in different parts of the world. Especially in China, there is a separate podium under which ESG investment is carried out by the companies. Due to this, they are performing well by performing good.
- ESG Investing:
- 6. Napoletano, E. (2021):
Due to the growing importance of sustainability reporting, a new type of investment is being carried out by the companies called ESG investing. Investing in the positive values of Environmentalal, Societal and Governance scores has being practiced. Due to this practice, companies are moving towards such activities which are very much favoring the concerns of climate change, green initiatives and further sustainable activities.
- 7. Rogers, S. (2023):
Investing ESG scores is very important from sustainability point of view. Companies have started investing in sustainable activities. Due to this return can be expected in the long run and immediate return is difficult to be achieved in general.
- 8. Whelan, T., Atz, T. U., Van, H., & Clark, C. (2021):
Different studies indicate that there is a high correlation between ESG Score and Financial performance of the company.
- 9. Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018):
There are different sectors where impact of ESG and Corporate financial performance can be seen. One such similar sector is Power sector. Under this sector the all three components are important. Power sector affects Society due to which societal score is affected. Power is generated from Environmental factors like water, wind and other factors so Environmental Score is affected. Much of power corporations are under the direct influence of government so by this the governance score is affected.
- Application of ESG Score:
- 10. Dalal, K. K., & Thaker, N. (2018):
ESG Score model can be applied to Indian Subcontinent also. Under the analysis, it can be observed that each component of ESG Score is related to Corporate financial performance under Indian conditions.
- 11. Daszyńska-Żygadlo, K., T. Słoński, and B. Zawadzki. (2016):
Generally it has been observed that those companies which go for more CSR activities build more trust in the society. Their helping nature towards the society makes them more of trustworthy rather than just entrepreneurs. Indirectly this factor increases the Market value of company. This can be seen in a conglomerate company. One initiation with respect to trust building can do wonders in the market value
- 12. Kao, E. H., C. Yeh, L. Wang, and H. Fung. (2018):
The CSR and company's performance can be correlated but it doesn't work with all. There are certain companies which say that even though they pay the tax on a regular basis then why they need to go for CSR activities. There are other set of companies as well which argue that CSR should be made mandatory at the minimal level of contribution. There are also other group of companies which do CSR activities on regular basis and do not exaggerate it. Complete mergence of CSR with performance is a difficult choice to take at.
- Need of Improvement:
- 13. Clementino, E., & Perkins, R. (2021):
Even though the ESG Scores are measured with the help of sustainability reporting, there are times when the ESG score is not up to the mark. The score gives the notion that there is a need of improvement. For any kind of improvement, firstly the component which is at risk is taken into consideration. Then the inverted filter method is used in order to understand what went wrong with that particular component. With this that component is revisited.
- Environmental Score:
H (1): There is a linear relationship between Environmental Score and Market Capitalization.

14. Mahmut Aydoğmuş, Güzhan Gülay, Korkmaz Ergun (2022):
There are individual scores under ESG Scores. Amongst them Environmental Score is also one. It can be seen from the studies that the environmental score is not related to company's value and it is independent from company's performance indicator. This gives a necessary area of research where impact of environmental score on market capitalization can be measured.
15. KPMG. (2020):
As it has been mentioned that climate change is the most important part for human beings right now. It has affected the market at so larger level that it is very difficult in the coming days to cope with. Sustainability reporting has indicated such firms which have got affected due to climatic changes. The Environmental score of such firms which have got affected due to climate change have got less investor due to the nature of the services and product.
16. Jones, K. (2000):
This brings to the most important part of ESG score and Sustainability reporting that is Environmental score. Environmental reporting of companies generally helps in disclosure of many things like Environmental conditions of the firm, most dominant factor in the environmental and last but not the least, the climacteric implications of environmental on firm.
 - Social Score:
H (2): There is a linear relationship between Social Score and Market Capitalization.
17. Griffin, J. J., and J. F. Mahon. (1997):
There is always a debate between Corporate Social Performance and Corporate Financial Performance. ESG Score and Sustainability Reporting act as a bridge between Corporate Social Performance and Corporate Financial Performance. Both the qualitative aspect as well as quantitative aspect is maintained as managed by ESG Score.
18. Little, P. L., and B. L. Little. (2000):
One of the factors which is used for stock market investment is Price to Earnings Ratio. It has been observed that the CSR activities have a positive correlation with Price to Earnings Ratio. This would help in building a bullish behavior of stocks.
19. Kay, I., Brindisi, C., & Martin, B. (2020):
For any stakeholder, the reputation of the company is very important. This reputation can be easily understood with the help of ESG reporting. With ESG reporting, the investor gets an idea whether to invest or disinvest in a company's share holding or not.
20. Kumar, P. & Firoz, M. (2022):
Each and every company maintains its accounts in the form of annual reports. Under the umbrella of annual reports, all the financial statements are prepared. The activities and financial operations related to CSR activity is also recorded. Based on funding with respect to CSR and other activities, the recording is done. This recording of activities with respect CSR helps the company in presenting in the form of annual report. This report acts as a source of references for investors.
 - Governance Score
H (3): There is a linear relationship between Governance Score and Market Capitalization.
21. Kim, R., & Koo, B. (2023):
Corporate culture and code of conduct is very important for any kind of company to proceed with operations at the corporate level. ESG Score's importance can be understood from this that if there is a disagreement between ESG rating and Corporate values then the firm would suffer from different kinds of problems. One of the most immediate problem which the firm would encounter is deviation in people's trust. The very attack at the trust can make the company to suffer a severe loss
22. Bai, C., Q. Liu, J. Lu, F. M. Song, and J. Zhang. (2004):
Along with CSR, one more factor which adds to the sustainability of the company is Corporate governance. Corporate Governance is the way in which the firms are governed. Sustainability Reporting has got three components. To cover the Corporate Governance part generally governance score is taken into consideration. Other components also do work with respect to Corporate Governance but Governance score is basically dealt with Corporate Governance.
23. Han, J. J., Kim, H. J., & Yu, J. (2016):
Stock markets dealing with Korean Stock Markets indicate that there exist a positive relationship between Governance score and financial return of the firm. This describes that the Governance score is very much prevalent in financial performance of the firm.

- ESG Score and Market Capitalization

H (4): There is a linear relationship between ESG Score and Market Capitalization.

24. Manisa, D. E., and F. Defung. (2017):

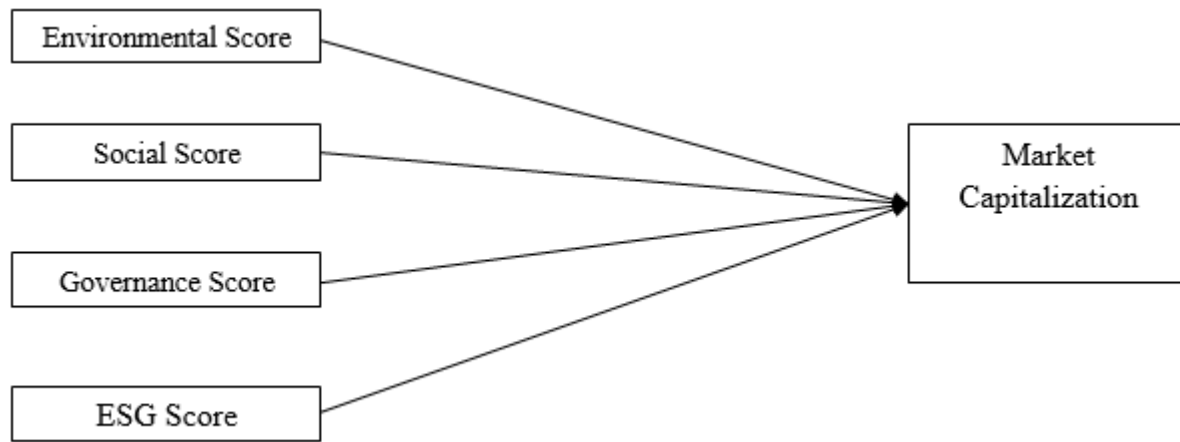
Sustainability reporting is very important because the disclosure of sustainability reporting builds confidence amongst stakeholders. Stakeholders are generally interested in such companies which have good image in the society. Sustainability reporting also helps in presenting the objectives of the firm.

25. Zhou, D., & Zhou, R. (2022):

ESG Score provides a draft for people to become potential investors. It also provides a way for such investors who have already invested into the company. Health sector is one such sector which provides most important facilities for people. If the government increases tax on medicines, then the ESG score would get affected. Due to this the variance and deviation can be seen in stock prices of the company listed under health index.

2. THEORETICAL BACKGROUND AND HYPOTHESIS DEVELOPMENT

A diagrammatic framework is prepared where Environmental score, societal score and governance score is taken as independent variables and ESG score is taken as dependent variable. Similarly Market Cap is taken as dependent variable with respect to Environmental score, societal score and governance score. Last but not the least, relationship between ESG score and Market Cap is displayed where ESG Score is independent variable and Market Cap is dependent variable.



Hypothesis Development

H (1): There is a relationship between Environmental Score, Social Score, Governance Score, ESG Score and Market Capitalization

H (2): There is a linear relationship between Environmental score and Market Capitalization

H (3): There is a linear relationship between Societal Score and Market Capitalization

H (4): There is a linear relationship between Governmental Score and Market Capitalization.

H (5): There is a linear relationship between ESG Score and Market Capitalization.

H (6): All predictors are not equal.

3. RESEARCH METHOD

Total number of 159 companies' data is collected. These companies are taken for the period 31st March 2024. This data deals with the Environmental score, social score, governance score, ESG score and Market Capitalization. The data has been collected from authentic source which have been mentioned.

Research Design: Causal Research Design

Data Type: Secondary Data

Sample Size: 159

New Source of companies: <https://www.nseindia.com/regulations/listing-compliance/nse-market-capitalisation-all-companies>

ESG Ratings: <https://www.crisilesg.com/en/home/esg-ratings.html>

Table 1: KMO and Bartlett's Test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.547
Bartlett's Test of Sphericity	Approx. Chi-Square	79.669
	df	5
	Sig.	.000

Interference: The value of 0.547 indicates that the model is significant as the value is more than 0.5

Correlation between Environmental Score, Social Score, Governance Score, ESG Score and Market Capitalization.

H (0): There is no relationship between Environmental Score, Social Score, Governance Score, ESG Score and Market Capitalization

H (1): There is a relationship between Environmental Score, Social Score, Governance Score, ESG Score and Market Capitalization.

Table 2: Correlation Matrix

Correlations						
		Environmental Score	Social Score	Governance Score	ESGScore	Market Capitalization
Environmental Score	Pearson Correlation	1	0.497**	0.373**	0.904**	0.235**
	Sig. (2-tailed)		0.000	0.000	0.000	0.003
	N	159	159	159	159	159
Social Score	Pearson Correlation	0.497**	1	0.114	0.659**	0.069
	Sig. (2-tailed)	0.000		0.152	0.000	0.385
	N	159	159	159	159	159
Governance Score	Pearson Correlation	0.373**	0.114	1	0.631**	0.192*
	Sig. (2-tailed)	0.000	0.152		0.000	0.015
	N	159	159	159	159	159
ESGScore	Pearson Correlation	0.904**	0.659**	0.631**	1	0.248**
	Sig. (2-tailed)	0.000	0.000	0.000		0.002
	N	159	159	159	159	159
Market Capitalization	Pearson Correlation	0.235**	0.069	0.192*	0.248**	1
	Sig. (2-tailed)	0.003	0.385	0.015	0.002	
	N	159	159	159	159	159
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Regression: Environmental Score and Market Capitalization

H (0): There is no linear relationship between Environmental Score and Market Capitalization.

H (2): There is a linear relationship between Environmental Score and Market Capitalization.

Table 3: Regression: Environmental Score and Market Capitalization.

Table 3 Regression: Environmental Score and Market Capitalization.						
Variables Entered/Removed						
Model		Variables Entered		Variables Removed		Method
1		Environmental Score				Enter
a. Dependent Variable: Market Capitalization						
b. All requested variables entered.						
Model Summary						
Model		R		R Square		Adjusted R Square
1		0.235		0.055		0.049
a. Predictors: (Constant), Environmental Score						
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.724E+15	1	3.724E+15	9.078	.003 ^b

Market Capitalization and its relationship with ESG Score

	Residual	6.399E+16	156	4.102E+14		
	Total	6.772E+16	157			
a. Dependent Variable: Market Capitalization						
b. Predictors: (Constant), Environmental Score						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-13599828	8015421.5		-1.697	0.092
	Environmental Score	508973.6	168924.81	0.235	3.013	0.003
a. Dependent Variable: Market Capitalization						

Regression between Social Score and Market Capitalization

H (0): There is no linear relationship between Social Score and Market Capitalization.

H (3): There is a linear relationship between Social Score and Market Capitalization.

Table 4: Regression: Social Score and Market Capitalization.

Table 4: Regression: Social Score and Market Capitalization.						
Variables Entered/Removed						
Model		Variables Entered		Variables Removed		Method
1		Social Score				Enter
a. Dependent Variable: Market Capitalization						
b. All requested variables entered.						
Model Summary						
Model		R		R Square		Adjusted R Square
1		0.069		0.005		-0.002
a. Predictors: (Constant), Social Score						
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.265E+14	1	3.265E+14	0.76	0.385 ^b
	Residual	6.743E+16	157	4.295E+14		
	Total	6.776E+16	158			
a. Dependent Variable: MarketCapitalization						
b. Predictors: (Constant), Social Score						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-2091684	13987540		-0.15	0.881
	Social Score	213617.67	245020.31	0.069	0.872	0.385
a. Dependent Variable: Market Capitalization						

Regression between Governance Score and Market Capitalization

H (0): There is no linear relationship between Governance Score and Market Capitalization.

H (4): There is a linear relationship between Governance Score and Market Capitalization.

Table 5: Regression: Governance Score and Market Capitalization.

Variables Entered/Removed			
Model	Variables Entered	Variables Removed	Method

1		Governance Score			Enter	
a. Dependent Variable: Market Capitalization						
b. All requested variables entered.						
Model Summary						
Model		R		R Square		Adjusted R Square
1		0.192		0.037		0.031
a. Predictors: (Constant), Governance Score						
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.507E+15	1	2.507E+15	6.033	0.015
	Residual	6.525E+16	157	4.156E+14		
	Total	6.776E+16	158			
a. Dependent Variable: Market Capitalization						
b. Predictors: (Constant), Governance Score						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-42502954	21444834		-1.982	0.049
	Governance	782069.82	318414.03	0.192	2.456	0.015
a. Dependent Variable: Market Capitalization						

Regression between ESG Score and Market Capitalization

H (0): There is no linear relationship between ESG Score and Market Capitalization.

H (5): There is a linear relationship between ESG Score and Market Capitalization.

Table 6: Regression: ESG Score and Market Capitalization.

Variables Entered/Removed						
Model		Variables Entered		Variables Removed		Method
1		ESG Score				Enter
a. Dependent Variable: Market Capitalization						
b. All requested variables entered.						
Model Summary						
Model		R		R Square		Adjusted R Square
1		0.248		0.062		0.056
a. Predictors: (Constant), ESG Score						
ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.179E+15	1	4.179E+15	10.321	0.002 ^b
	Residual	6.358E+16	157	4.049E+14		
	Total	6.776E+16	158			
a. Dependent Variable: Market Capitalization						
b. Predictors: (Constant), ESG Score						
Coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-43557903	16753001		-2.6	0.01
	ESG Score	934885.7	291002.4	0.248	3.213	0.002
a. Dependent Variable: Market Capitalization						

Table 7: Path Analysis

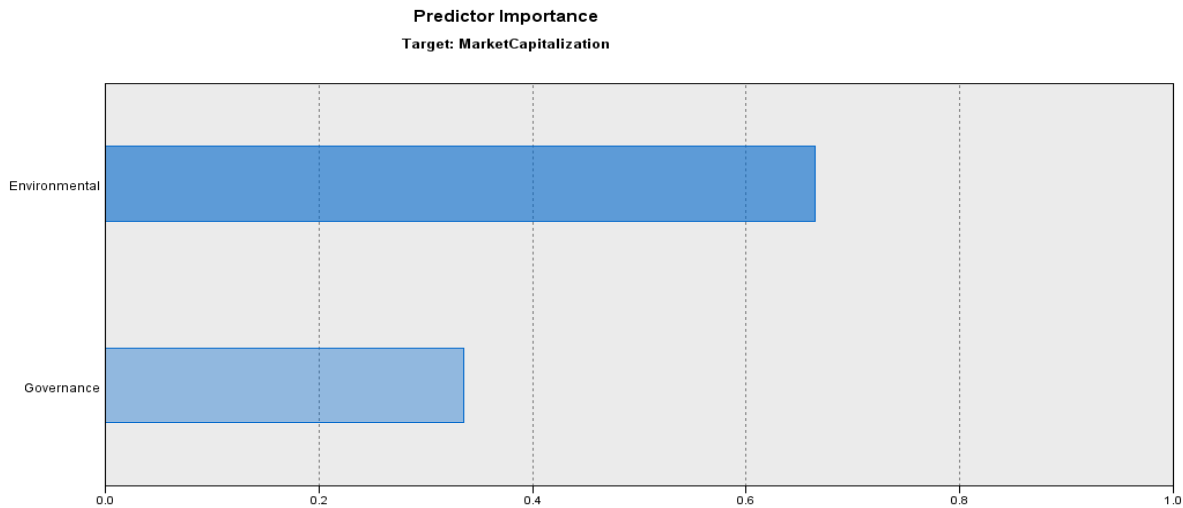
Market Capitalization and its relationship with ESG Score

SL.N o	Path	Regression Coefficient	T Value	Significant Value (2 Tail)	Decision
1	Market Capitalization←Environmental Score	0.235	3.013	0.003	Accepted
2	Market Capitalization← Social Score	0.069	0.872	0.385	Rejected
3	Market Capitalization← Governance Score	0.192	2.456	0.015	Accepted
4	Market Capitalization←ESG Score	0.248	3.213	0.002	Accepted

O5:Predictor Analysis:

Null Hypothesis H (0): All the predictors are equally important.

Alternate Hypothesis H (6): All the predictors are not equally important.



Interpretation: Out of all the independent scores, Social score is not indicated in the predictor analysis. This provides an inference that the Social score is not much relevant as compared to other scores which are Environmental score and Governance Score.

4. RESULTS AND DISCUSSION

1. There is a positive correlation between Environmental score, social score, Governance score, ESG Score and Market Cap.
2. The R value between Environmental score and Market Capitalization is 0.235.
3. The R value between social score and Market Capitalization is 0.069
4. The R value between Governance score and Market Capitalization is 0.192 which indicates that the Environmental Score is having highest R value with Market Capitalization followed by governance score and social score.
5. The R value between ESG Score and Market Capitalization is 0.248. There is a linear relationship between ESG Score and Market Capitalization.
6. From the path analysis it can be understood that the significant value of all factors are below 0.05 except Social Score whose value is 0.385. This indicates that the decision with respect to Social score is rejected as compared to other factors which are accepted as their significant values are below 0.05.
7. Under Predictor Analysis, it can be seen that Environmental Score's predictor importance value is 0.66 and Governance Score's predictor value is 0.34. This indicates that the value of Environmental factor is high as compared to Governance Score. This makes that Environmental score more important than Governance Score.
8. From the above analysis, can be confirmed that the environmental score is very much important amongst the individual scores of ESG Score.

5. CONCLUSION, IMPLICATION AND LIMITATION

5.1 CONCLUSION

For any company to flourish, environmental factors are very important. Next important factor is governance factor. Amongst ESG reporting, Environmental score and Governance scores are utmost important parameters. Companies should take these two scores very seriously operating under subcontinent conditions.

5.2 IMPLICATION

To improve social score, companies should attract the stakeholders. By having the attention of stakeholders, social score can be improved and at the same time it can be made relevant for other stakeholders as well.

5.3 LIMITATION

5.3.1 One of the major limitations is universality of the study. Application of the current results to other set of environmental, social and governance can bring different results. Other nations have different problems. Due to this the applicability becomes a challenge.

5.3.2 Apart from the above limitation, one more is under better social conditions social score will have different impact. Due to this the entire analysis will differ.

CONFLICT OF INTERESTS

None.

ACKNOWLEDGMENTS

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