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Environmental, Social and Governance (ESG) Factors as Key Factors in Industrial and Retail Properties/Real Estate Investment Decision

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Abstract: *ESG factors has become increasingly important in property and real estate investment decisions in recent times hence, this study x-rays the importance of considering these factors in industrial and retail properties. The study identified some factors that influence ESG in industrial and retail properties. The principal component analysis done for factors in respect to industrial properties identifies these factors and they include; employee wellbeing, community health impact, energy efficiency community engagement, transportation access and indoor air quality sustainable design and materials, employment health and safety practices and green certification. The analysis done shows that employee wellbeing is ranked first, followed by community engagement while green spaces rank seventeenth. The study also identified factors affecting ESG in retail properties, such as employee wellbeing, community health impacts, biodiversity, green certification, indoor air quality, energy efficiency, transportation access, sustainable design and materials. The measure of sampling adequacy and sphericity done for both industrial and retail properties shows that samples used were good in cases. The study concludes that the real estate sector plays a crucial role in shaping the future of our planet and emphasised need to continue to take ESG factors in consideration in real estate investment decision.*
Keywords: *ESGs, industrial properties, investment decision, real estate and retail properties*

INTRODUCTION

Real estate as an industry in the recent times appears to have witnessed a significant shift with Environmental, Social and Governance (ESG) factors emerging as critical considerations in investment decisions. Environmental, Social and Governance also seems to be increasingly becoming a force to reckon with in crucial considerations in real estate investment decisions across all sectors. This includes industrial and retail properties. ESG factors can be referred to as the environmental impact, social responsibility and corporate governance practices of a

company or asset, (Glazerman and Cohen, 2020). These factors are believed to not only essential for promoting sustainability but also responsible business practices and for mitigating risks as well as enhancing long-term value for investors, (Mejía-Escobar, González-Ruiz, and Duque-Grisales, 2020). Industrial and retail properties are also increasingly being scrutinized for their ESG performance while investors seek to mitigate risks, capitalize on opportunities as well as contribute to sustainable development, (Broadstock, Chan, Cheng, and Wang, 2020).

ESG factors plays a crucial role which is aimed at driving investment decisions in the industrial real estate sector hence; industrial properties have a wide range of environmental impacts from energy consumption, emissions to waste management and water usage, (Almeyda and Darmansya, 2019). Investors in recent times appear to be seeking consistently the properties that are environmentally friendly, energy-efficient and sustainable in terms of practices, (Al-Yousfi, 2004). It is believed that the incorporation of ESG criteria into their investment decisions, i.e. in the industrial sector can help investors in the reduction of operating costs, attraction of tenants that are environmentally conscious as well as enhancement of the overall value of the industrial assets, (Broadstock et al., 2020).

Comparably, ESG consideration appears to becoming increasingly important in the retail real estate sector. Retail properties have a social impact which adjudged to be significant on local communities even as they serve in most cases as places where people gather as well as serve as economic hubs, (Zhao, 2023). Investors are on the lookout for retail properties that prioritizes social responsibility for instance; support to local businesses, promotion of diversity and inclusion as well as contributing to the community positively, (Richman and Simpson, 2015). More so, good corporate governance practices such as; transparency, accountability and ethical behaviour are very crucial towards ensuring the long-term success and sustainability of retail properties, (Kanji and Chopra, 2010).

The integration of ESG factors into investment decisions is believed to be propelled by the growing awareness on climate change, depletion of natural resources and environmental degradation, (Broadstock et al., 2020). The incorporation of ESG factors into industrial and retail real estate investment decisions is not only a responsible and ethical choice but also a strategic one, (Jinga, 2021). It is believed through the consideration of environmental, social and governance factors, investors can actually enhance the value and performance of their properties, (Voorhes and Humphreys, 2011). This in turn will attract tenants and customers whose priority is on sustainability and social responsibility. In addition is the mitigation of risks that is related to regulatory compliance, damage of the reputation and inefficiencies in operation, (Newsham, Veitch, and Hu, 2017). At the present time ESG-conscious market, it is crucial for industrial and retail real estate investors to fully aim at integrating these factors into their decision-making process, this is necessary to ensure long-term success and profitability, (Almeyda and Darmansya, 2019).

It is based on the foregoing that is study is designed with the aim, to identify and evaluate key ESG factors influencing industrial and retail property investment decisions. This study will no doubt contribute to the existing body of knowledge on ESG factors in real estate investment decisions, focusing on industrial and retail properties.

REVIEW OF LITERATURE

The factors; Environmental, Social and Governance (ESG) considerations appears to have become crucial force to reckon with in shaping decision-making processes across various industries with the real estate sector inclusive. The environment factors relate to the environmental impact and sustainability practices which are adopted within a property or development project, (Razali, Yunus, Zainudin, and Lee Yim Mei 2017). They are; management of waste, energy efficiency, and reduction of carbon emissions. On the other hand, the social factors deal with the social impact of real estate and related activities on communities, employees as well as stakeholders while it encompasses diversity and inclusion, labor practices, standards in relation to health and safety and community engagements, (Falkenbach, Lindholm, and Schleich, 2010). Also the issues pertaining to governance considerations deals with the structure, policies and practices which aids in ensuring transparency, ethics, accountability in management and decision-making within real estate organizations, (Oladokun, 2010).

According to Izyumov, (2023), the significance of the incorporation of ESG factors in the real estate industry can be traced to the growing recognition of their impact on the performance of property, management of risk, engagement of stakeholder as well as long-term sustainability. It is worthy to state that through the integration ESG considerations into real estate investment and development strategies, competitive advantages of companies can be enhanced, (Izyumov, 2023). This can be attraction of socially responsible investors as well as mitigation of potential risks that is associated therewith, (Hughes, Urban, and Wójcik, 2021).

It is noteworthy to that the perceived increasing demand for sustainable and socially responsible properties from investors, tenants and regulators alike has pushed real estate companies to incorporate ESG principles in their operations and developments, (Ionascu, 2019). More so, it appears that embracing ESG factors not only a demonstration of commitment to responsible business practices but serves also as a huge contribution towards the enhancement of the overall value, resilience and reputation of real estate portfolios in a fast-developing market landscape that is characterized by the shift of consumer preferences, requirements of the regulation and concerns on climate change, (Mangialardo, Micelli, and Saccani, 2018).

In industrial properties, ESG factors appear to be playing a crucial role which is geared towards shaping the sustainability and assets performance. Industrial properties are said or believed to be subject to stringent rules and regulations that are geared towards the mitigation of their environmental footprint as it relates to the impact of environmental regulations, (Ellison and Brown, 2011). Also, the compliance with regulations on the environment not only ensures adherence to legal issues/requirement but it also a demonstration of the commitment to sustainable practices, enhancement of the property's reputation and its value, (Warren, 2010).

In the aspects of social considerations as it concerns the development of industrial properties, the stakeholders must as matter of necessity prioritize factors such as engagement of the community, labor practices as well as measures pertaining to health and safety, (García-Gómez,

González-Gaya, and Rosales-Prieto 2020). It also believed that engagement with locales, fostering good and positive relationships with the employees and the provision of safe working conditions do not only contributes to the well-being of individuals but also it enhances the overall social sustainability of the property, (Alameeri, Ajmal, Hussain, and Helo 2018). In addition, the adoption of the social responsibility initiatives for instance, the support of charities at the local level or the implementation of the diversity and inclusive programs could further lead to the enhancement of the property's social impact and perception of the stakeholders, (Wei, Shuai and Min 2011).In aspect of governance practices, it is believed that same are critical towards ensuring transparency; accountability and decision-making that can be seen as responsible, (Martínez and Olander, 2015). The implementation of effective governance structure which includes; good reporting mechanisms, business practices that is meets good ethics and robust risk management frameworks, can help in the mitigation of potential risks, lead to the enhancement of operational efficiency and in building trust among stakeholders, (Uzma, 2018).

ESG factors in retail properties appear to be critical factors in the engagement of the consumer, in driving sustainability and operational efficiency. The sustainable practices in design and management of retail properties involve the incorporation of materials that are eco-friendly, technologies that are energy-efficient and strategies for waste reduction, (Ruiz–Real, Uribe-Toril, Gázquez-Abad, and De Pablo Valenciano 2018). Retailers whose focus is on designs that are sustainable not only reduce their environmental impact but environmentally conscious consumers also attracted, (Armstrong and Lang, 2013).In retail properties social responsibility initiatives features the address of the community needs, promotion of ethical sourcing and support of social causes, (Jones, Comfort, and Hillier 2005). Also, governance and transparency issues in retail operations are essential for the maintenance of trust with stakeholders, (Sughra and Crowther, 2015).

ESG factors is believed to have a profound impact on property performance, they influence not only financial metrics but also management of risk and perception of the stakeholder, (Kulal, Abhishek, Dinesh, and M.S 2023). It is worthy to state that a strong ESG framework can aid in the enhancement of the property value via the reduction of operational costs, increased marketability and improvement of the long-term sustainability, (Maiti, 2020).More so, a robust governance practices and transparent operations in both retail and industrial properties have the capacity to mitigate risks, help in building trust with stakeholders as well as help in ensuring long-term viability, (Sivagnanasundaram, 2018). It could be said that Investors needs to increasingly consider ESG factors when they are assessing property investments, (Pivo, 2008). This is because these elements are acts as resilience indicator, efficiency of operation and potential value creation, (Zhang and Liu, 2022).

RESEARCH METHODOLOGY

This study employed a mixed-methods approach, combining: literature reviews, surveys, interviews and statistical analysis. This design incorporates both quantitative and qualitative methods; this is needed to obtain a comprehensive understanding of the topic. A structured questionnaire which was developed was used to gather quantitative data from Estate Surveyors

and Valuers. The survey features questions that are related to the importance of ESG factors on industrial and retail properties. The research design involves survey as well as interview. Questionnaires were distributed to Estate Surveyors and Valuers. Online survey platforms via the aid of google form or email distribution as well as hard copy questionnaires were deployed for data collection. A purposive sample of Estate Surveyors and Valuers was taken and they were interviewed especially the ones with knowledge of ESG factors. The methods of analysis were both descriptive and inferential. Descriptive statistics featured the determination of frequency distributions, mean scores and standard deviations; these were for different variables related to ESG factors. An inferential statistical test such as mean rank and factor analysis was conducted.

Data presentation and analysis of results:

BACKGROUND INFORMATION OF RESPONDENTS

The information shows the background information of the respondents and these include: gender, highest educational qualification, professional cadre, registered Estate Surveyor and Valuers, years of experience.

Table 1

Gender	**Frequency**	**Percentage**
Male	255	58.6
Female	180	41.4
Highest educational qualification	**Frequency**	**Percentage**
HND/BSC/BTECH	285	65.5
MSC/MTECH	80	18.4
PHD	70	16.1
Professional cadre	**Frequency**	**Percentage**
Probationer	300	68.9
Associate	100	22.9
Fellow	35	8.0
Registered Estate Surveyors and Valuers	**Frequency**	**Percentage**
Yes	135	30.03
No	300	69.97
Years of Experience	**Frequency**	**Percentage**
0-5	240	55.2
6-10	120	27.6
11-15	50	11.5
16 and above	25	5.8
Total	**435**	**100.00**

Source: Field survey, 2024

The information in table 1 revealed the demographic information of respondents in this order; there were more male respondents than female respondents which could be due to high percentage of male in the real estate sector. According to level of educational qualification, 65.5% of the respondents were HND/BTECH Holders which comprises of the high percentage of respondents; this was followed by MSC/MTECH while PHD Holders ranked as the least. It was also revealed that a high percentage of the respondents were registered estate surveyors and valuers while a high percentage of the respondents had 0-5 years of experience followed by 6-10, 11-15 and 16- above respectively.

Table 2: Factors considered in valuing identified classes of properties: Industrial

Descriptive Statistics

	N	Mean	Std. Deviation	Rank
Employee well being	435	3.28	1.53	1st
Community health impact	435	3.19	1.40	2nd
Energy efficiency	435	3.18	1.41	3rd
Community engagement	435	3.11	1.45	4th
Transportation access	435	3.09	1.45	5th
Indoor air quality	435	3.09	1.49	5th
Sustainable design and materials	435	3.07	1.52	6th
Employment, health and safety practices	435	3.06	1.40	7th
Green certification	435	3.05	1.48	8th
Waste management	435	3.02	1.55	9th
Patient safety	435	3.00	1.52	10th
Water conservation	435	3.00	1.56	10th
Quest for certification	435	2.98	1.45	11th
Biodiversity	435	2.94	1.46	12th
Ethical supply chain	435	2.92	1.39	13th
Sustainable sourcing	435	2.84	1.54	14th
Resilience climate change	435	2.76	1.45	15th
Customers health and safety practices	435	2.68	1.40	16th
Green spaces	435	2.68	1.38	17th

Source: Field survey, 2024

According to the information on table 2, employee wellbeing ranked 1st with mean score of 3.28, community health impact ranked 2nd with mean score of 3.19, Energy efficiency ranked 3rd with mean score of 3.18, community engagement ranked 4th with mean score of 3.11, transportation access and indoor air quality ranked 5th with mean score of 3.09, sustainable design and materials ranked 6th with mean score of 3.07, employment health and safety practices ranked 7th with mean score of 3.06, green certification ranked 8th with a mean score of 3.05.

Table 3: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.769
Bartlett's Test of Sphericity	Approx. Chi-Square	1339.119
	Df	171
	Sig.	.000

Source: Field survey, 2024

Kasier-Meyer-Olkin's measure of sampling adequacy and Barlett's Test of sphericity are presented in Table 14 above. KMO measure is performed to check the degree of inter-correlation among the items and the appropriateness of factor analysis. Kim and Mueller (1978) suggested that KMOs in the range of 0.5-0.7 are considered average, those in the range of 0.7-0.8 are considered good while those in 0.8-0.9 are great and values greater than 0.9 are superb. The table 3 above shows that the KMO values obtained are in the range of 0.77 which indicates that the sample is good.

Table 4: Total Variance Explained

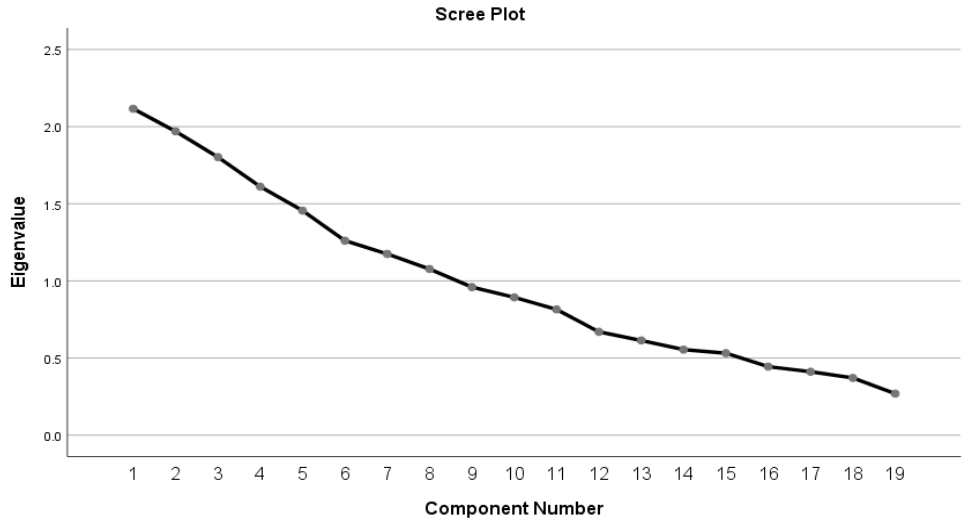
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.116	11.136	11.136	2.116	11.136	11.136
2	1.969	10.363	21.500	1.969	10.363	21.500
3	1.803	9.487	30.987	1.803	9.487	30.987
4	1.611	8.478	39.465	1.611	8.478	39.465
5	1.455	7.660	47.125	1.455	7.660	47.125
6	1.261	6.636	53.761	1.261	6.636	53.761
7	1.175	6.183	59.944	1.175	6.183	59.944
8	1.077	5.667	65.611	1.077	5.667	65.611
9	.960	5.052	70.663			
10	.893	4.702	75.365			
11	.815	4.290	79.654			
12	.670	3.525	83.180			
13	.614	3.232	86.412			
14	.555	2.919	89.331			
15	.532	2.798	92.129			
16	.444	2.337	94.466			
17	.411	2.165	96.631			
18	.371	1.953	98.584			
19	.269	1.416	100.000			

Extraction Method: Principal Component Analysis.

Table 4 shows that Principal Component Analysis was conducted and eight components were extracted for the factors identified in valuing industrial property explaining 11.136%, 10.263%, 9.487%, 8.478%, 7.660%, 6.636%, 6.183%, 5.667% of the total variance respectively and resulting with a cumulative variance of 65.611%. The principal factors influencing ESG in industrial properties are: employee wellbeing, community health impact, energy efficiency community engagement, transportation access and indoor air quality sustainable design and

materials, employment health and safety practices and green certification. Although all other factors are related but they contributed in small measures as revealed by factor analysis.

Figure 1: Scree Plot on industrial property factor



The scree plot shows that after the first four components, the difference between the fourth and fifth eigenvalues increased and then gradually declined. The first component explains 11.136% of the total variance at 2.116, the second component explains 10.363% of the total variance at 1.969, the third component explains 9.487% of the total variance at 1.803, the fourth component explains 8.478% of the total variance at 1.611, the fifth component explains 7.660% of the total variance at 1.455, The sixth component explains 6.636% of the total variance at 1.261, the seventh component explains 6.183% of the total variance at 1.175, the eight component explains 5.667% of the total variance at 1.077. Thus the principal factors influencing ESG in industrial properties are: employee wellbeing, community health impact, energy efficiency community engagement, transportation access and indoor air quality sustainable design and materials, employment health and safety practices and green certification. Although all other factors are related but they contributed in small measures as revealed by factor analysis.

Table 5: Component Matrix[a]

	Component							
	1	2	3	4	5	6	7	8
Energy efficiency	.261	-.091	.174	.183	.292	.495	.185	-.076
Water conservation	.263	.331	-.182	.036	.118	-.420	-.402	.000
Waste management	-.010	.638	.068	-.174	-.260	.246	-.363	-.243
Indoor air quality	.279	-.420	.221	.475	-.109	.062	.203	-.062
Green certification	-.319	.183	.452	.308	-.176	-.366	.149	.244
Community engagement	.321	.150	.421	.000	.410	.108	-.040	.458
Sustainable sourcing	.024	.012	.668	.065	.211	.012	-.333	-.213
Employment, health and safety practices	.404	.140	-.109	.605	-.312	-.004	.017	-.139
Ethical supply chain	-.413	-.271	-.011	-.411	.398	-.030	.144	-.050
Customers health and safety practices	.453	.283	.325	-.058	-.181	.296	.189	-.106
Quest for certification	-.488	.318	.311	.017	.279	.248	.100	-.151
Patient safety	.392	.041	.184	-.307	-.059	-.365	.601	-.002
Employee well being	-.453	.477	-.215	.146	.019	-.071	.413	-.309
Community health impact	-.039	.572	-.418	.237	.117	.144	.217	.179
Sustainable design and materials	-.228	.433	.420	.230	.150	-.285	.023	.162
Transportation access	.169	.155	-.426	.215	.496	.214	.008	.289
Biodiversity	-.394	-.312	-.101	.508	.004	-.075	-.153	.206
Green spaces	.566	.191	-.140	-.136	.363	-.380	-.028	-.107
Resilience climate change	-.039	.187	.031	-.369	-.499	.207	.011	.588

Extraction Method: Principal Component Analysis.
a. 8 components extracted.

The table 5 above shows the component matrix for factors influencing ESG in a real estate environment for industrial properties.

Table 6: Rotated Component Matrix[a]

	Component							
	1	2	3	4	5	6	7	8
Energy efficiency						.476		
Water conservation							.721	
Waste management				.845				
Indoor air quality	.478							
Green certification		.788						
Community engagement						.780		
Sustainable sourcing								
Employment, health and safety practices	.797							
Ethical supply chain								
Customers health and safety practices					.480			
Quest for certification								.550
Patient safety					.823			
Employee well being			.523					
Community health impact			.786					
Sustainable design and materials		.738						

Transportation access			.622					
Biodiversity								
Green spaces							.633	
Resilience climate change								

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 14 iterations.

Table 6, the rotated component matrix shows the factor loadings for each variable, eight components were extracted as factors influencing ESG for industrial properties. The first component loaded two (2) factors which are: indoor air quality, employment, health and safety practices. The second component loaded two (2) factors: Green certification, sustainable design and materials. The third component loaded three (3) factors and they are: Employee wellbeing, community health impact and transportation access. The fourth component loaded one (1) factor: waste management. The fifth component loaded one (1) component; customers health and safety practices. The sixth component loaded two (2); Energy efficiency, community engagement. The seventh component loaded two (2); water conservation, green spaces. The eight components loaded one (1); quest for certification.

Retail Properties

Table 7: Descriptive Statistics

	N	Mean	Std. Deviation	Rank
Employee well being	435	3.17	1.52	1st
Community health impact	435	3.14	1.44	2nd
Biodiversity	435	3.12	1.39	3rd
Green certification	435	3.08	1.45	4th
Indoor air quality	435	3.06	1.53	5th
Energy efficiency	435	3.05	1.45	6th
Transportation access	435	3.03	1.41	7th
Sustainable design and materials	435	3.00	1.46	8th
Employment, health and safety practices	435	2.99	1.41	9th
Waste management	435	2.97	1.53	10th
Community engagement	435	2.96	1.47	11th
Water conservation	435	2.91	1.51	12th
Quest for certification	435	2.88	1.42	13th
Resilience climate change	435	2.81	1.45	14th
Ethical supply chain	435	2.81	1.39	14th
Sustainable sourcing	435	2.68	1.48	15th
Customers health and safety practices	435	2.68	1.46	16th
Patient safety	435	2.67	1.44	17th
Green spaces	435	2.58	1.33	18th

Source: Field survey, 2024

According to the information on table 7, employee well-being ranked 1st with mean score of 3.17, community health impact ranked 2nd with mean score of 3.14, biodiversity ranked

3rd with mean score of 3.12, green certification ranked 4th with mean score of 3.08, indoor air quality ranked 5th with mean score of 3.06, Energy efficiency ranked 6th with mean score of 3.05, Transportation access ranked 7th with mean score of 3.03, sustainable design and materials ranked 8th with mean score of 3.00.

Table 8: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.731
Bartlett's Test of Sphericity	Approx. Chi-Square	1332.609
	Df	171
	Sig.	.000

Source: Field survey, 2024

Kasier-Meyer-Olkin's measure of sampling adequacy and Barlett's Test of sphericity are presented in Table 8 above. KMO measure is performed to check the degree of inter-correlation among the items and the appropriateness of factor analysis. Kim and Mueller (1978) suggested that KMOs in the range of 0.5-0.7 are considered average, those in the range of 0.7-0.8 are considered good while those in 0.8-0.9 are great and values greater than 0.9 are superb. The table 8 above shows that the KMO values obtained are in the range of 0.73 which indicates that the sample is good.

Table 9: Total Variance Explained

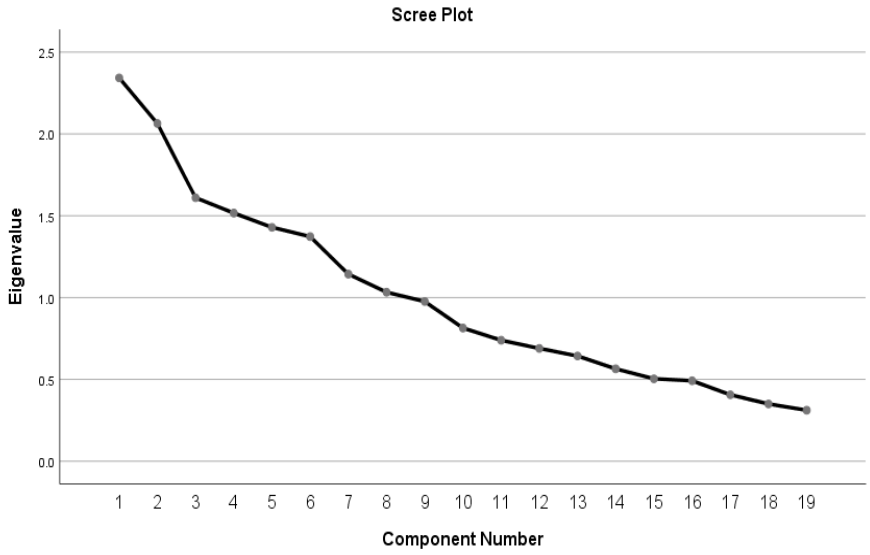
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.343	12.329	12.329	2.343	12.329	12.329
2	2.064	10.862	23.192	2.064	10.862	23.192
3	1.610	8.474	31.665	1.610	8.474	31.665
4	1.517	7.982	39.647	1.517	7.982	39.647
5	1.429	7.522	47.169	1.429	7.522	47.169
6	1.373	7.224	54.393	1.373	7.224	54.393
7	1.143	6.018	60.411	1.143	6.018	60.411
8	1.033	5.435	65.846	1.033	5.435	65.846
9	.976	5.138	70.983			
10	.814	4.284	75.268			
11	.739	3.892	79.159			
12	.689	3.628	82.787			
13	.643	3.384	86.171			
14	.565	2.971	89.142			
15	.504	2.652	91.793			
16	.492	2.588	94.381			
17	.406	2.138	96.519			
18	.350	1.841	98.360			
19	.312	1.640	100.000			

Extraction Method: Principal Component Analysis.

Source: Field survey, 2024

Table 9 shows that Principal Component Analysis was conducted and eight components were extracted for the factors identified in valuing industrial property; the factors revealed the presence of six axes with eigenvalues exceeding 1.0, explaining 12.329%, 10.862%, 8.474%, 7.982%, 7.522%, 7.224%, 6.018%, 5.435% of the total variance respectively and resulting with a cumulative variance of 65.846%. The principal factors influencing ESG in industrial properties are: employee wellbeing, community health impacts, biodiversity, green certification, indoor air quality, energy efficiency, transportation access, sustainable design and materials. Although all other factors are related but they contributed in small measures as revealed by factor analysis.

Figure 2: Scree Plot for factors on retail properties



The scree plot shows that after the first three components, and then gradually declined and became more or less than 1.0. The first component explains 12.329% of the total variance at 2.343, the second component explains 10.862% of the total variance at 2.064, the third component explains 8.474% of the total variance at 1.610, the fourth component explains 7.982% of the total variance at 1.517, the fifth component explains 7.522% of the total variance at 1.429, The sixth component explains 7.224% of the total variance at 1.373, the seventh component explains 6.018 of the total variance at 1.143, the eight component explains 5.435 of the total variance at 1.033.

The principal factors influencing ESG in retail properties are: employee wellbeing, community health impacts, biodiversity, green certification, indoor air quality, energy efficiency, transportation access, sustainable design and materials. Although all other factors are related but they contributed in small measures as revealed by factor analysis.

Table 10: Component Matrix[a]

	Component							
	1	2	3	4	5	6	7	8
Energy efficiency	-.073	.109	.273	-.283	.541	-.029	-.221	.301
Water conservation	.378	.003	.083	-.229	-.437	.263	.456	.046
Waste management	.246	-.191	.642	-.083	-.374	.148	-.277	.012
Indoor air quality	-.615	-.148	-.105	-.119	.180	-.055	.443	.254
Green certification	-.315	.331	.334	.207	.132	.182	.493	.140
Community engagement	.373	.142	.048	-.236	.525	.304	.203	.100
Sustainable sourcing	-.287	.391	.463	-.221	.034	.072	-.205	-.350
Employment, health and safety practices	-.049	-.340	.513	-.083	-.158	-.246	.219	.197
Ethical supply chain	.443	.355	-.218	-.254	.122	.348	.098	-.363
Customers health and safety practices	-.335	-.209	.387	.106	.160	.464	-.203	.020
Quest for certification	.125	.667	.109	-.092	.048	-.013	-.078	.134
patient safety	.021	-.102	-.039	.704	.199	.176	.128	-.259
Employee well being	.554	.329	.097	.458	-.139	-.093	.044	.153
Community health impact	.659	-.205	.145	.254	.191	-.253	-.057	.301
Sustainable design and materials	-.093	.535	.343	.457	.062	-.081	.075	-.067
Transportation access	.365	-.292	.019	-.013	.523	-.212	-.067	-.098
Biodiversity	-.303	.290	.031	-.004	.032	-.674	.012	-.264
Green spaces	-.013	-.603	.244	.145	.187	.075	.159	-.425
resilience climate change	-.366	.024	-.307	.352	-.060	.367	-.353	.297

Extraction Method: Principal Component Analysis.
a. 8 components extracted.

The table 10 above shows the component matrix for the factors influencing ESG in retail properties and 8 components were extracted.

Table 11: Rotated Component Matrix[a]

	Component							
	1	2	3	4	5	6	7	8
Energy efficiency						.650		
Water conservation							.796	
Waste management	.575				.528			
Indoor air quality								
Green certification		.653						
Community engagement						.700		
Sustainable sourcing			.753					
Employment, health and safety practices					.707			
Ethical supply chain								
Customers health and safety practices								.552
Quest for certification								
Patient safety		.445		.537				
Employee well being	.456	.475						
Community health impact								
Sustainable design and materials		.760						
Transportation access						.473		

Biodiversity								
Green spaces				.808				
Resilience climate change								.717

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
a. Rotation converged in 15 iterations.

Source: Field survey, 2024

The rotated component matrix shows the factor loadings for each variable, eight components were extracted as factors influencing ESG for retail properties. The first component loaded two (2) factors which are: waste management and employee wellbeing. The second component loaded four (4) factors: Green certification, patient safety, employee wellbeing, sustainable design and materials. The third component loaded one (1) factor; sustainable sourcing. The fourth component loaded two (2) factors and they are: patient safety, green spaces. The fifth component loaded two (2) components; waste management, employment, health and safety practices. The sixth component loaded three (3); energy efficiency, community engagement, transportation access. The seventh component loaded one (1); water conservation. The eight components loaded two (2); customers' health and safety practices, resilience climate change.

SUMMARY OF FINDINGS AND CONCLUSION

The summary of the findings are as indicated below;

The principal factors influencing ESG in industrial properties after the principal component analysis has been done are: employee wellbeing, community health impact, energy efficiency community engagement, transportation access and indoor air quality sustainable design and materials, employment health and safety practices and green certification. Although all other factors are related but they contributed in small measures as revealed by factor analysis. For ranking of all the identified factors using descriptive statistics, employee well-being ranked 1st, community health impact ranked 2nd while green spaces ranked 17th. The measure of sampling adequacy and sphericity done shows that samples used were good in cases.

The principal factors influencing ESG in retail properties after the principal component analysis has been done are: employee wellbeing, community health impacts, biodiversity, green certification, indoor air quality, energy efficiency, transportation access, sustainable design and materials. Although all other factors are related but they contributed in small measures as revealed by factor analysis. For ranking of all the identified factors using descriptive statistics, employee well-being ranked 1st, community health impact ranked 2nd and green spaces was ranked 18th. Also, the measure of sampling adequacy and sphericity done shows that samples used were good in cases.

It could also be observed that employee well-being and community health impact ranked 1st and 2nd in case of industrial and retail property respectively however, that of green spaces was different as it ranked 17th in case of former and 18th in the cased of latter.

Conclusively, while there seems to be consensus the real estate sector plays a vital role in the global community and economic activity and that its role in shaping the future of our planet is one without doubt. There need to continue to take ESG factors in consideration in real estate investment decision. As a result of the increasing need to look at the ESG factors in the real investment decision, this study identified the environmental, social and governance (ESG) factors as key factors in industrial and retail properties/real estate investment decision.

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