

## A study on Earnings Management using (Beneish M-Score) for Sustainable Development of FMCG Industry

*Simran Agrawal  
S. Manikandan  
A.Sakthivel*

### **Abstract**

Beneish m-score, a metric serve as a comprehensive assessment tool for evaluating the market performance of companies that operate in a dynamic sector such as the FMCG industry wherein sustainable growth and development has always been an issue. This metric uses financial ratios calculated with accounting data of a specific enterprise aimed to detect if an enterprise is likely that the reported earnings of the company or industry were manipulated. It is an operational indicators or a quantitative framework which help the stakeholder to assess the financial position of the company including risk management, wealth management, profitability as well as competitor analysis. Managers have that power, knowledge and techniques to adjust the report related to earnings to meet the requirements of the company to achieve certain goals. But Beneish m-score help to detect the financial fraud. It gives insight about the company which helps the stakeholder to take decision in the competitive landscape of the FMCG industry.

**KEY WORDS:** *Quantitative framework, Beneish m-score, Earnings management, Decision making, Manipulation of funds, Accounting data*

### **Introduction**

The Fast-Moving Consumer Goods (FMCG) industry stands as a pillar of economic activity, catering to the daily needs of billions around the world. With its vast reach and substantial economic impact, this industry's sustainability is of paramount importance. In the pursuit of sustainable development, transparency and ethical financial reporting are fundamental prerequisites. Earnings management, a practice that involves manipulating financial statements to project a desired image, poses a significant challenge in ensuring transparency and sustainability within the FMCG industry.

This study aims to shed light on the critical issue of earnings management within the FMCG industry and its implications for sustainable development. Earnings management refers to the strategic manipulation of financial data to meet specific financial targets, influence stakeholder perceptions, or even obscure financial distress. While it is not inherently illegal, excessive or unethical earnings management can erode investor confidence, hinder informed decision-making, and undermine the long-term viability of companies.

To investigate earnings management in the FMCG sector, we employ the Beneish M-Score, a widely recognized and robust tool that helps detect the likelihood of earnings manipulation. Developed by Professor Daniel Beneish, this model analyzes several financial ratios and indicators to identify red flags associated with earnings management. By focusing on the FMCG industry including "COLGATE PALMOLIVE, BRITANIA INDUSTRIES, DABUR INDIA AND GODREJ INDUSTRIES", this research recognizes the unique dynamics and challenges within the sector, including the highly competitive nature, extensive

global supply chains, and changing consumer preferences that drive companies to meet performance expectations.

### **Company's Profile**

#### ***COLGATE PALMOLIVE***

Colgate Palmolive is a multinational consumer goods company known for its products in the areas of oral care, personal care and household cleaning. Some of their well-known brands include Colgate toothpaste, Palmolive soap. The company was founded in 1806 and has since grown to become a global leader in its industry. They focus on products related to health and wellness and they operate in numerous countries around the world.

#### ***Britania Industries***

An Indian food products company that is famous for its wide range of biscuits and bakery products. The company was founded in 1892. The company has become one of India's most well-known and trusted food brands. The company has a strong presence in India and expanded its operations globally.

#### ***Godrej Industries***

AN Indian conglomerate with diverse business interests. It plays a significant role within the group and is involved in various sectors including Agri -products, chemicals, animal feed and gourmet retail.

#### ***Dabur India***

Dabur India is one of India's leading consumer goods companies specializing in healthcare, personal care and food products. It was founded in 1884 by DR. S.K.Burman and has since grown into a well-known and trusted brand in India and internationally.

### **Scope of the study**

This research is essential because it addresses a critical gap in the literature by focusing on the FMCG industry, a sector that has been relatively underexplored in terms of earnings management studies. As the FMCG industry holds a strategic position in the global economy, ensuring its sustainability is not only a business imperative but a matter of public interest. Through the application of the Beneish M-Score and comprehensive analysis, this study aims to provide actionable insights for stakeholders, including investors, regulators, and industry leaders, to make informed decisions and foster sustainable growth within the FMCG sector.

In the subsequent sections, we will delve into the theoretical framework, methodology, data analysis, and findings of our study. By doing so, we hope to contribute to the growing body of knowledge in financial research while simultaneously promoting transparency and ethical practices in the FMCG industry for a more sustainable future.

### **Literature Review**

Richard Fedorko (2018):- An interesting and beneficial study was provided by Beneish, Lee, and Nichols, who sought to analyze whether the M-score was useful in detecting significant fraudulent practices in financial statement scandals. In this study, M-score revealed 71 % of the most significant financial reporting scandals. Some authors argue that detecting companies which manipulate their financial statements can be beneficial for the parties concerned – for an investor in the form of increased returns, avoidance of costly litigation for an auditor, and avoidance of damaging reputations for an analyst.

Mckee, t.e. (2005) :- Beneish M-Score has played a pivotal role in the field of financial analysis and accounting research. Its effectiveness in detecting earnings manipulation has been widely demonstrated,

and it continues to be a valuable tool for investors, auditors, and regulators in their efforts to maintain financial transparency and integrity in the corporate world.

John MacCarthy (2017):- The Beneish M-Score has also raised questions about its potential application in external auditing and regulatory contexts. Researchers have discussed its potential role in supporting auditors in identifying risks of earnings manipulation and as a supplementary tool for regulatory authorities in monitoring financial reporting.

Mohamad Kamal (2016):- Beyond its ability to detect earnings manipulation, the M-Score has been linked to firm performance and earnings quality. Some studies have found that firms with higher M-Scores experience negative future stock returns and are more likely to face financial distress. This indicates that the M-Score is not just a detection tool but also a measure of financial risk.

Darsono Darsono (2020):- Several studies have compared the Beneish M-Score with other earnings manipulation detection models, such as the Altman Z-Score or the Dechow-Dichev accrual quality model. These comparisons have generally shown that the M-Score is competitive or superior in terms of predictive accuracy.

Cris Kuntadi (2019):- This model has proven to be effective in identifying earnings manipulation in both domestic and international settings, including emerging markets. It has been used to assess companies in sectors ranging from technology to finance, illustrating its versatility.

Hussein Salia (2020):- Beneish introduced the M-Score in his seminal paper titled "The Detection of Earnings Manipulation" in 1999. This paper not only introduced the M-Score but also provided comprehensive details on its development and validation. The original study tested the M-Score on a sample of firms that had been accused of accounting fraud and found that the M-Score effectively identified cases of earnings manipulation.

### **Objective of the study**

#### ***The core objectives of this study are as follows***

To identify the specific financial indicators and metrics that serve as indicators of earnings manipulation.

To understand the motivations and implications of earnings management on the sustainability of FMCG companies.

To propose measures and strategies that can mitigate earnings management and promote sustainable development within the FMCG sector.

### **Limitation of the study**

Beneish M-Score is a useful tool for identifying potential earnings manipulation or financial fraud, but it has limitations and should be used in conjunction with other investigative methods and a comprehensive approach to financial analysis and due diligence.

The Beneish M-Score is based on financial ratios and indicators, and while it can highlight red flags, it cannot conclusively prove that fraud is occurring. It is a tool for identifying areas that warrant further investigation.

Beneish M-Score relies on past financial data, and it may not capture ongoing or recent fraudulent activities. Financial fraud can evolve, and this model may not keep up with the latest techniques.

The model is entirely quantitative and does not take into account qualitative information, such as management behavior, corporate culture, or industry-specific factors, which can also be important indicators of potential fraud.

### Data collection and interpretation

**Table: 1**  
**M Score Analysis of Colgate Palmolive**

Particulars	COLGATE PALMOLIVE									
	Yr ending 2014	Yr ending 2015	Yr ending 2016	Yr ending 2017	Yr ending 2018	Yr ending 2019	Yr ending 2020	Yr ending 2021	Yr ending 2022	Yr ending 2023
Net Receivables	55	70	102	130	201	210	133	117	225	157
Sales	3,545	3,955	4,132	3,951	4,159	4,432	4,488	4,810	5,066	5,188
Cost of Goods Sold (COGS)	1,130	1,186	1,146	1,156	1,189	1,328	1,350	1,250	1,368	1,493
Current Assets	672	690	774	856	1060,72	1,010	1,012	1,373	1,483	1,548
Non-Current Assets (NCA)	817	1,012	1,169	1,455	1,503	1,616	1,592	1,521	1,419	1,335
Property, Plant & Equipment (PP&E)	2	4	4	147	164	193	258	287	316	329
Securities	2	3	4	76	86	37	48	45	39	44
Total Assets	1,489	1,702	1,944	2,311	2,564	2,626	2,604	2,894	2,902	2,883
Depreciation	51	75	111	133	157	159	198	183	177	175
Selling, General & Administrative expenses (SG&A)	1,513	1,692	1,736	1,562	1,586	1,668	1,751	1,782	1,866	1,885
Current Liability	863	867	837	983	983	1,051	870	1,618	1,082	1,085
Total Long Term Debt	26	65	88	54	56	129	140	110	85	82
Income from Continuing Operations	540	559	577	577	637	776	816	1,035	1,078	1,047
Cash Flow from Operations	457	638	673	688	694	983	930	784	1,626	1,176

### M Score Variables

Particulars	Colgate Palmolive									
	Yr ending 2013	Yr ending 2014	Yr ending 2015	Yr ending 2016	Yr ending 2017	Yr ending 2018	Yr ending 2019	Yr ending 2020	Yr ending 2021	Yr ending 2022
Days Receivable Index (DSRI)	----	1.1405	1.3955	1.3378	1.4702	0.9793	0.6241	0.8239	1.8221	0.6840
Gross Margin Index (GMI)	----	0.9730	0.9689	1.0215	0.9906	1.0198	1.0017	0.9444	1.0140	1.0248
Asset Quality Index (AQI)	----	1.0825	1.0120	0.9444	0.9220	1.0379	0.9450	0.8328	0.8915	0.9173
Sales Growth Index (SGI)	----	1.1156	1.0449	0.9563	1.0526	1.0656	1.0124	1.0720	1.0532	1.0240
Depreciation Index (DEPI)	----	1.0089	0.9857	2.0289	0.9767	1.0787	1.0422	1.1161	1.0803	1.0379
Selling, General & Administrative Index (SGAI)	----	1.0025	0.9818	0.9410	0.9643	0.9871	1.0367	0.9498	0.9943	0.9864
Leverage Index (LVGI)	----	0.9168	0.8687	0.9437	0.9033	1.1081	0.8634	1.5398	0.6736	1.0061
Total Accruals to Total Assets (TATA)	----	-	-	-	-	-	-	0.0869	-	-
		0.0465	0.0496	0.0479	0.0221	0.0790	0.0434	0.1886	0.0448	
<b>M Score</b>	----	-	-	-	-	-	-	-	-	-
		<b>2.4191</b>	<b>2.2763</b>	<b>2.2972</b>	<b>2.1055</b>	<b>2.8098</b>	<b>2.9969</b>	<b>2.4210</b>	<b>2.4817</b>	<b>2.9753</b>

$$M \text{ Score} = -4.840 + (0.920 \times DSRI) + (0.528 \times GMI) + (0.404 \times AQI) + (0.892 \times SGI) + (0.115 \times DEPI) - (0.172 \times SGA I) - (0.327 \times LVGI) + (4.697 \times TATA)$$

### Interpretation

The value of the indicators reveals the potential earnings manipulation. If the m-score value is greater than -1.78 then there is a strong likelihood of a company being a manipulator. If the m-score value is less than -1.78 then the company is unlikely to be a manipulator. From the above table we can interpret that the company was unlikely in earnings manipulation for all the years.

**Table: 2**  
**M Score Analysis of Britannia Industries**

Particulars	(Britannia industries)									
	Yr endi	Yr endi	Yr endi	Yr endi	Yr endi	Yr endi	Yr endi	Yr endi	Yr endi	Yr endi

	ng 2014	ng 2015	ng 2016	ng 2017	ng 2018	ng 2019	ng 2020	ng 2021	ng 2022	ng 2023
Net Receivables	109	136	171	179	305	394	320	257	332	329
Sales	6,829	7,775	8,325	8,962	9,830	10,973	11,444	12,883	13,945	15,985
Cost of Goods Sold (COGS)	3,657	4,120	4,331	4,840	4,906	5,513	5,685	6,502	7,474	8,327
Current Assets	1,047	1,673	1,725	2,340	3,152	3,527	3,675	4,420	3,971	4,747
Non-Current Assets (NCA)	1,067	1,121	1,770	1,770	2,037	2,716	4,168	3,590	3,546	4,607
Property, Plant & Equipment (PP&E)	725	721	821	1,021	1,209	1,550	1,731	1,649	1,598	2,513
Securities	-	-	150	374	306	287	372	520	554	665
Total Assets	2,107	2,794	3,494	4,109	5,188	6,242	7,842	8,009	7,516	9,352.72
Depreciation	83	144	113	119	142	162	185	198	201	226
Selling, General & Administrative expenses (SG&A)	1,852	2,022	1,829	1,835	1,904	2,318	2,342	2,473	2,632	3,220
Current Liability	1,247	1,477	1,330	1,346	1,648	1,852	2,579	3,615	4,156	4,135
Total Long Term Debt	60	69	70	64	121	104	825	811	774	1,654
Income from Continuing Operations	396	688	824	884	1,004	1,156	1,393	1,850	1,516	2,311
Cash Flow from Operations	671	584	959	441	1,249	1,156	1,485	1,851	1,300	2,526

### M Score Variables

10.	Britannia Industries									
	Yr endi ng 2013	Yr endi ng 2014	Yr endi ng 2015	Yr endi ng 2016	Yr endi ng 2017	Yr endi ng 2018	Yr endi ng 2019	Yr endi ng 2020	Yr endi ng 2021	Yr endi ng 2022
Days Receivable Index (DSRI)	----	1.0974	1.1732	0.9755	1.5502	1.1594	0.7792	0.7134	1.1920	0.8645
Gross Margin Index (GMI)	----	0.9880	0.9800	1.0428	0.9184	1.0066	0.9888	1.0161	1.0674	0.9686
Asset Quality Index (AQI)	----	0.8819	1.8954	0.6716	0.8745	1.1707	1.6641	0.7801	1.0692	0.8639
Sales Growth Index (SGI)	----	1.1385	1.0707	1.0765	1.0968	1.1164	1.0429	1.1257	1.0824	1.1463

Depreciation Index (DEPI)	----	0.616 5	1.376 0	1.159 9	0.995 4	1.111 8	0.980 0	0.900 3	0.961 0	1.351 4
Selling, General & Administrative Index (SGAI)	----	0.959 1	0.844 6	0.931 9	0.946 1	1.090 7	0.968 9	0.938 0	0.983 2	1.067 2
Leverage Index (LVGI)	----	0.891 8	0.724 1	0.856 7	0.993 1	0.919 5	1.384 9	1.272 9	1.187 2	0.943 5
Total Accruals to Total Assets (TATA)	----	0.037 2	- 0.038 6	0.107 8	- 0.047 2	0.000 1	- 0.011 7	- 0.000 2	0.028 8	- 0.023 0
<b>M Score</b>	----	- <b>2.147</b> 7	- <b>1.927</b> 5	- <b>1.961</b> 0	- <b>2.191</b> 8	- <b>2.133</b> 0	- <b>2.560</b> 1	- <b>2.802</b> 7	- <b>2.093</b> 7	- <b>2.606</b> 5

$$\text{M Score} = -4.840 + (0.920 \times \text{DSRI}) + (0.528 \times \text{GMI}) + (0.404 \times \text{AQI}) + (0.892 \times \text{SGI}) + (0.115 \times \text{DEPI}) - (0.172 \times \text{SGAI}) - (0.327 \times \text{LVGI}) + (4.697 \times \text{TATA})$$

### Interpretation

From the above table, it was interpreted that the company was in earnings manipulation for the year ending 2015 and 2017 as the value of m-score is greater than -1.78 which states that the company is manipulated their earnings. But for the year ending 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021 and 22 the model shows that the company was in earnings manipulation but slightly lower than the remaining two years.

**Table: 3**  
**M Score Analysis of Dabur India**

Particulars	DABUR INDIA									
	Yr ending 2014	Yr ending 2015	Yr ending 2016	Yr ending 2017	Yr ending 2018	Yr ending 2019	Yr ending 2020	Yr ending 2021	Yr ending 2022	Yr ending 2023
Net Receivables	675	711	809	650	706	834	814	562	646	849
Sales	7,073	7,806	7,762	7,592	7,654	8,419	8,604	9,493	10,808	11,427
Cost of Goods Sold (COGS)	2,739	3,003	2,859	3,025	3,220	3,475	3,732	3,999	4,766	5,307
Current Assets	3,056	2,731	3,216	3,114	3,440	3,586	4,880	4,776	4,317	4,249
Non-Current Assets (NCA)	2,256	3,376	3,717	4,618	5,262	4,850	4,474	6,071	7,968	9,405
Property, Plant & Equipment (PP&E)	642	662	673	929	971	972	1,061	1,131	1,329	1,596
Securities	105	86	341	308	423	388	471	391	335	314

Total Assets	5,312	6,106	6,932	7,732	8,702	8,437	9,354	10,847	12,285	13,654
Depreciation	97	115	133	143	162	177	220	240	253	311
Selling, General & Administrative expenses (SG&A)	2,538	2,791	2,501	2,349	2,284	2,484	2,551	2,770	2,995	3,097
Current Liability	2,294	2,418	2,253	2,225	2,434	2,660	2,464	2,934	3,323	3,609
Total Long Term Debt	346	315	487	636	534	113	248	213	540	604
Income from Continuing Operations	672	763	940	998	1,072	1,264	1,170	1,382	1,433	1,373
Cash Flow from Operations	1,101	1,047	1,107	1,227	1,092	1,499	1,614	2,115	1,802	1,488

### M Score Variables

Particulars	Dabur India									
	Yr ending 2013	Yr ending 2014	Yr ending 2015	Yr ending 2016	Yr ending 2017	Yr ending 2018	Yr ending 2019	Yr ending 2020	Yr ending 2021	Yr ending 2022
Days Receivable Index (DSRI)	----	0.9538	1.1449	0.8217	1.0768	1.0732	0.9554	0.6254	1.0106	1.2425
Gross Margin Index (GMI)	----	0.9958	0.9742	1.0500	1.0385	0.9865	1.0370	0.9784	1.0353	1.0438
Asset Quality Index (AQI)	----	1.4627	0.9879	1.0867	1.0336	0.9324	0.7937	1.2482	1.1865	1.0584
Sales Growth index (SGI)	----	1.1036	0.9943	0.9782	1.0081	1.1000	1.0219	1.1033	1.1386	1.0572
Depreciation Index (DEPI)	----	0.8911	0.8958	1.2390	0.9314	0.9291	0.8949	0.9825	1.0956	0.9800
Selling, General & Administrative Index (SGAI)	----	0.9963	0.9013	0.9603	0.9646	0.9887	1.0047	0.9842	0.9497	0.9780
Leverage Index (LVGI)	----	0.9009	0.8828	0.9358	0.9223	0.9637	0.8818	1.0007	1.0838	0.9813
Total Accruals to Total Assets (TATA)	----	- 0.0466	- 0.0242	- 0.0296	- 0.0022	- 0.0278	- 0.0474	- 0.0676	- 0.0301	- 0.0084
<b>M Score</b>	----	<b>- 2.4438</b>	<b>- 2.4404</b>	<b>- 2.6856</b>	<b>- 2.3551</b>	<b>- 2.4829</b>	<b>- 2.7621</b>	<b>- 2.9604</b>	<b>- 2.4017</b>	<b>- 2.1912</b>

$$\text{M Score} = -4.840 + (0.920 \times \text{DSRI}) + (0.528 \times \text{GMI}) + (0.404 \times \text{AQI}) + (0.892 \times \text{SGI}) + (0.115 \times \text{DEPI}) - (0.172 \times \text{SGAI}) - (0.327 \times \text{LVGI}) + (4.697 \times \text{TATA})$$



## Interpretation

From the above table, it is interpreted that the company was in low likelihood of earnings manipulation in the years as because the value of M-score is ranges in -2.35 to -2.96.

**Table: 4**  
**M Score Analysis of Godrej Industries**

Particulars	Godrej Industries									
	Yr ending 2014	Yr ending 2015	Yr ending 2016	Yr ending 2017	Yr ending 2018	Yr ending 2019	Yr ending 2020	Yr ending 2021	Yr ending 2022	Yr ending 2023
Net Receivables	543	627	856	906	1,002	1,160	1,552	1,511	1,676	1,500
Sales	7,474	8,803	7,375	8,236	8,884	10,699	11,126	9,201	13,944	16,627
Cost of Goods Sold (COGS)	3,359	3,647	3,686	4,730	5,064	5,673	6,305	5,713	8,563	10,175
Current Assets	7,289	8,565	8,070	8,386	8,719	8,730	10,573	17,617	20,394	26,100
Non-Current Assets (NCA)	3,909	4,938	6,216	6,835	8,276	9,541	9,892	11,388	13,653	17,875
Property, Plant & Equipment (PP&E)	9	32	193	269	236	374	382	1,032	499	532
Securities	321	572	1,100	1,120	823	1,061	1,101	1,468	2,339	2,622
Total Assets	11,198	13,503	14,286	15,220	16,995	18,271	20,465	29,005	34,047	43,975
Depreciation	70	93	117	148	175	163	234	242	274	305
Selling, General & Administrative expenses (SG&A)	1,321	1,259	1,253	1,460	1,759	1,796	2,124	2,158	2,537	3,116
Current Liability	6,150	7,309	8,206	8,745	11,068	10,189	10,177	12,045	15,075	2,135
Total Long Term Debt	1,261	1,818	1,797	1,805	1,236	1,524	941	3,590	5,891	7,539
Income from Continuing Operations	296	382	78	115	141	366	373	37	707	1,025
Cash Flow from Operations	(394)	(1,050)	199	569	1,690	1,240	394	(664)	(1,756)	(4,409)

### M Score Variables

Industries	Godrej Industries
------------	-------------------

	Yr ending 2013	Yr ending 2014	Yr ending 2015	Yr ending 2016	Yr ending 2017	Yr ending 2018	Yr ending 2019	Yr ending 2020	Yr ending 2021	Yr ending 2022
Days Receivable Index (DSRI)	----	0.9794	1.6299	0.9481	1.0250	0.9619	1.2867	1.1766	0.7321	0.7506
Gross Margin Index (GMI)	----	0.9401	1.1711	1.1751	0.9898	0.9155	1.0841	1.1431	0.9823	0.9945
Asset Quality Index (AQI)	----	1.0432	1.1605	1.0231	1.0967	1.0606	0.9261	0.7684	1.0821	1.0208
Sales Growth Index (SGI)	----	1.1778	0.8378	1.1167	1.0788	1.2043	1.0398	0.8270	1.5154	1.1925
Depreciation Index (DEPI)	----	1.1893	1.9680	1.0659	0.8327	1.4032	0.8005	1.9946	0.5373	0.9721
Selling, General & Administrative Index (SGAI)	----	0.8096	1.1875	1.0433	1.1172	0.8479	1.1370	1.2284	0.7757	1.0302
Leverage Index (LVGI)	----	1.0212	1.0360	0.9899	1.0444	0.8855	0.8475	0.9922	1.1424	0.3572
Total Accruals to Total Assets (TATA)	----	0.1060	- 0.0084	- 0.0298	- 0.0911	- 0.0478	- 0.0010	0.0242	0.0724	0.1236
<b>M Score</b>	----	- <b>1.8089</b>	- <b>1.8624</b>	- <b>2.4586</b>	- <b>2.8351</b>	- <b>2.4676</b>	- <b>2.1675</b>	- <b>2.2987</b>	- <b>1.9642</b>	- <b>1.7500</b>

$$\text{M Score} = -4.840 + (0.920 \times \text{DSRI}) + (0.528 \times \text{GMI}) + (0.404 \times \text{AQI}) + (0.892 \times \text{SGI}) + (0.115 \times \text{DEPI}) - (0.172 \times \text{SGAI}) - (0.327 \times \text{LVGI}) + (4.697 \times \text{TATA})$$

### Interpretation

From the above table, we can interpret that the company is slightly likelihood of earnings manipulation for the years ending 2016, 2017, 2018, 2019 and 2020. But for the year ending 2022, the company is nowhere indulging in the earnings manipulation. Because as per the standard rule which states that if the m-score value is less than -1.78 then the company does not indulge in earning manipulation.

### Findings

The Beneish M-Score is a financial distress model used to detect the probability of earnings manipulation or financial statement fraud by a company. It is not directly related to sustainable development. However, we can potentially use financial analysis, including models like the Beneish M-Score, to assess the financial sustainability and transparency of a company. This, in turn, can indirectly impact or be impacted by sustainable development efforts. Here are some possible findings and considerations when using the Beneish M-Score analysis in the context of sustainable development of the company:

Financial Sustainability: Companies that engage in fraudulent activities, which the Beneish M-Score aims to detect, may undermine their own financial sustainability. Sustainable development often involves long-term thinking and responsible financial management, so detecting potential fraud is important.

Investor Confidence: A high M-Score might indicate a higher risk of earnings manipulation, which can erode investor confidence. Sustainable development initiatives often require investment, and investor confidence is crucial for securing funding for such projects.

Environmental Impact: Sustainable development often has a focus on reducing environmental impact. Companies that manipulate their earnings may be more likely to cut corners on environmental initiatives to improve short-term financial results.

Social Responsibility: Companies engaged in financial fraud may also neglect social responsibility and ethical considerations. Sustainable development encompasses not just environmental aspects but also social and ethical dimensions.

## **Suggestions**

Screen Potential Partners and Investments: Use the Beneish M-Score as a preliminary screening tool to identify companies with a high likelihood of financial distress or earnings manipulation. Avoid partnerships or investments in such companies as they may not be reliable partners in sustainable development projects.

Combine with ESG Analysis: Combine the Beneish M-Score analysis with an evaluation of the company's Environmental, Social, and Governance (ESG) performance. This comprehensive analysis can help you assess not only financial stability but also ethical and sustainability practices.

Focus on Transparency: Pay particular attention to the transparency of financial reporting. Sustainable development initiatives often rely on accurate and transparent financial data. A history of financial manipulation is a red flag.

Long-Term Financial Health: Sustainable development is a long-term commitment. Analyze the company's financial health and its ability to sustain sustainability efforts over time. A high M-Score might indicate a company's short-term focus.

## **Conclusion**

In summary, while the Beneish M-Score is not directly related to sustainable development, it can help identify financial risks that may indirectly impact a company's ability to engage in sustainable practices. It is important to consider the financial health and transparency of companies involved in sustainable development to ensure that they are committed to long-term sustainability goals and responsible practices.

## **Bibliography**

Beneish, M. D. (1999). The Detection of Earnings Manipulation. *Financial Analysts Journal*, 55(5), 24-36.

Beneish, M. D. (2013). Timely loss recognition and the prediction of financial distress. *Journal of Accounting Research*, 51(1), 1-33.

Altman, E. I., Marco, G., & Varetto, F. (1994). Corporate distress diagnosis: Comparisons using linear discriminant analysis and neural networks. *Journal of Banking & Finance*, 18(3), 505-529.

Beaver, W. H. (1966). Financial ratios as predictors of failure. *Journal of Accounting Research*, 71-111.

O'Connor, P., & Mulford, C. (2013). The Beneish M-score model. Investopedia. [Online Article].

Penman, S. H. (2006). Financial reporting quality: Is fair value a plus or a minus? *Accounting and Business Research*, 36(sup1), 33-44.

Penman, S. H., & Zhang, X. J. (2002). Accounting conservatism, the quality of earnings, and stock returns. *The Accounting Review*, 77(2), 237-264.

Zmijewski, M. E. (1984). Methodological issues related to the estimation of financial distress prediction models. *Journal of Accounting Research*, 185-208.

Ohlson, J. A. (1980). Financial ratios and the probabilistic prediction of bankruptcy. *Journal of Accounting Research*, 109-131.