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Earnings Manipulation Risk and Profitability in Restaurant Companies: An Analysis in Borsa İstanbul

Restoran İşletmelerinde Kazanç Manipülasyon Riski ve Karlılık: Borsa İstanbul'da Bir Analiz

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Abstract

This study has two primary objectives. The first is to measure earnings manipulation risk among restaurant companies listed in the Hotels and Restaurants sector on Borsa Istanbul. The second is to examine the relationship between manipulation risk and profitability performance. Earnings manipulation risk for the 2021–2024 period was assessed using the Montier C-Score model. Return on assets (ROA), return on equity (ROE), and return on sales (ROS) were then calculated, and their association with manipulation risk was evaluated through correlation analysis and ranking. The results indicate that restaurant companies exhibited varying C-Scores across years, with an overall moderate level of earnings manipulation risk. Criterion 6 (Asset Growth) emerged as the most frequently triggered indicator of potential manipulation, while Criterion 1 (Difference between Net Income and Cash Flow from Operating Activities) reflected the lowest risk. Notably, a consistent positive relationship was found only between earnings manipulation risk and return on sales, suggesting that higher manipulation risk may be associated with increased return on sales.

Key Words: Earnings Manipulation, Montier C-Score, Profitability, Restaurant Companies, Borsa İstanbul.

Özet

Bu araştırmanın iki temel amacı bulunmaktadır. Birinci amaç Borsa İstanbul Otel ve Lokantalar Sektöründe pay senetleri işlem gören restoranların kazanç manipülasyon risklerinin ölçülmesidir. İkinci temel amaç ise hesaplanan kazanç manipülasyon riskleri ile karlılık performansı arasındaki ilişkinin saptanmasıdır. Bu kapsamda öncelikle işletmelerin 2021-2024 yıllarına ait kazanç manipülasyonu riskleri

Montier-C Skoru modeliyle saptanmıştır. Daha sonra işletmelerin 2021-2024 yıllarına ait aktif karlılığı, özsermaye karlılığı ve net kar marjı oranları hesaplanmış ve işletmelere ait Montier-C Skorlarına göre manipülasyon risk dereceleri ile karlılık oranları arasındaki ilişki hem korelasyon analiziyle hem de sıralandırmayla değerlendirilmiştir. Araştırma sonucunda restoranların C-Skorlarının yıl bazında farklılık gösterdiği ve ortalama değerler itibariyle orta düzeyde kazanç manipülasyon riski içinde oldukları belirlenmiştir. Yine, Kriter 6'nın (Toplam Varlık Büyümesi) en yüksek manipülasyon riskini taşıyan kriter olduğu saptanmıştır. Buna karşın Kriter 1'in (Net Kar ile İşletme Faaliyetlerinden Elde Edilen Nakit Akışı Farkı) en düşük riski gösterdiği saptanmıştır. Kazanç manipülasyon riski ile karlılık arasındaki ilişkinin değerlendirilmesi sonucunda kazanç manipülasyon riski ile sadece net kar marjı arasında tutarlı bir pozitif ilişki olduğu ve kazanç manipülasyon riski yükseldikçe satış karlılığının da yükseldiği saptanmıştır.

Anahtar Kelimeler: Kazanç Manipülasyonu, Montier C-Skoru, Karlılık, Restoran İşletmeleri, Borsa İstanbul.

INTRODUCTION

Financial statements are critical tools for analysing a company's financial condition and operational outcomes, and for providing relevant information to financial statement users. However, flexibility in accounting policies and managerial discretion during their preparation may allow companies to engage in manipulative practices such as inflating earnings or concealing losses (Healy & Wahlen, 1999). Earnings manipulation typically involves techniques like premature revenue recognition, expense deferral, inventory overvaluation, or artificial inflation of asset growth (Beneish, 1999). Such practices pose risks to market efficiency, undermine investor confidence, and present significant challenges for regulatory bodies (Dechow & Skinner, 2000). Models developed to detect financial manipulation risk have become valuable in both academic research and investment analysis. In this context, James Montier's C-Score is a widely recognized model that assesses earnings manipulation risk by identifying anomalies in financial statements. The C-Score classifies a firm's manipulation risk on a scale from 0 (low risk) to 6 (high risk), based on six indicators ranging from discrepancies between net income and cash flow to asset growth rates. The model has been notably effective as an early warning tool, particularly for short-sellers, and in identifying underperforming firms in both U.S. and European markets (Montier, 2008).

The restaurant sector is an extremely important sector for global and local economies in terms of the income and employment it generates, its support for the tourism sector, its relationship with many different sectors, and the fact that it constitutes a key component of consumer spending. Globally, the market size of the restaurant sector has reached approximately USD 3.5 trillion as of 2023, with a projected annual growth of 4.7% until 2027 (Statista, 2023). The restaurant sector is an extremely important sector for global and local economies in terms of the income and employment it generates, its support for the

tourism sector, its relationship with many different sectors, and the fact that it constitutes a key component of consumer spending. Globally, the market size of the restaurant sector has reached approximately USD 3.5 trillion as of 2023, with a projected annual growth of 4.7% until 2027 (Statista, 2023). In the restaurant industry, high fixed and variable costs, seasonal demand fluctuations, and economic contractions during the pandemic can create anomalies in financial reporting processes and increase the risk of earnings manipulation. In restaurants, such manipulations often occur through inflating sales revenues (e.g., hiding discounts), extending inventory turnover (misreporting food inventories), or overvaluing fixed assets (kitchen equipment, new branches) (Parsa, Gregory & Terry, 2010). Detection of such practices is critical for investors to make decisions with reliable financial information, lenders to assess risk, and regulators to protect market integrity (Dechow et al., 2011).

This study aims to assess the earnings manipulation risks with the Montier C-Score by analysing the financial statements of five restaurant companies traded on Borsa Istanbul (BIST) between 2021 and 2024 and to examine the relationship between these risks and return on assets, equity and sales through correlation analysis and ranking. The study also analyses which financial dynamics increase the risk of earnings manipulation. Taking into account the strategic importance of the restaurant sector in the world and Turkish economy, the study aims to contribute to the understanding of post-pandemic financial transparency and provide guidance to managers, investors, lenders and regulators. In an emerging economy like Turkey, a systematic examination of the manipulation risk of restaurant businesses traded on Borsa Istanbul (BIST) may have important implications for both increasing market discipline and the sustainability of the sector. In addition, it is aimed to contribute to the academic literature with findings specific to the Turkish market.

LITERATURE

Financial manipulation is defined as the intentional distortion of the financial statements of enterprises to reflect their economic outlook differently from what it actually is and poses serious risks for investors, creditors and regulators, especially in companies traded in securities markets. Earnings manipulation, the most common form of financial manipulation, is carried out by inflating revenues, understating expenses or manipulating accounting estimates (Ronen & Yaari, 2008). Although misleading financial statements may raise share prices in the short run, in the long run they may cause investor losses, credit losses and damage to market confidence (Levitt, 1998). Therefore, early detection of manipulation with various models is critical. The Montier C-Score model developed for this purpose assigns a score between 0-6 to companies by looking for ‘red flags’ in six indicators: increase in the net income-cash flow gap, increase in the average collection period of receivables and inventory turnover period, increase in other current assets relative to income, decrease in depreciation relative to gross fixed assets and excessive increase in asset growth. A total score of 0 indicates no risk, 1-2 low, 3-4 medium, 5-6 high probability of

manipulation (Parikh & Shah, 2022). Designed by James Montier based on data from the 1990–2000 period, this simple and intuitive model was developed to support short-selling strategies. By revealing anomalies in the accounting practices of firms with high C-Scores, it serves as an early warning signal for investors regarding the potential for share price declines. As such, the model has been recognized in the financial literature as an effective tool for identifying high-risk companies (Montier, 2008; Pedchenko et al., 2022).

The origins and detection methods of earnings manipulation have been widely discussed in the literature. Healy & Wahlen (1999), found that accrual-based accounting policies are the primary tool of manipulation and the ultimate goal is to mislead investors. Similarly, Dechow & Skinner (2000), emphasise that the decoupling of accounting profits from cash flows is a critical indicator for detecting manipulation. Reinforcing these theoretical approaches with empirical findings, Montier (2008) demonstrated that the C-Score model developed in different sectors is effective in identifying accounting manipulations. The practical validity of the model is supported by Dub (2019), who found low manipulation risk for two companies, medium manipulation risk for one company and high manipulation risk for one company in a study of five agribusinesses in Ukraine. However, Govender (2013), in his research covering the period 2002-2010 in the Johannesburg Stock Exchange, pointed out the limitations of the method by revealing that C-Score alone is not sufficient for short position selection. Parikh & Shah (2022), who systematically discuss the diversity of manipulation models, argue that while there is an extensive literature on the Beneish M-Score, alternatives such as the Dechow F-Score, Pustylnick P-Score and Montier C-Score are less known by auditors and regulators, whereas these models can also be useful in fraud detection. Focusing on single company analysis, Pedchenko et al. (2022) evaluated the 2016-2020 financial statements of Morshinsky Mineral Water Plant Oscar with three different scores (Montier C, Beneish M and Roxas M) and showed that possible reporting violations can be detected. Finally, Khatwani et al. (2024), examine a large body of literature covering the period 1934-2021 and find that score-based investment portfolios constructed with equity-based indicators such as F-Score, G-Score, L-Score and Montier C-Score and debt-based indicators such as Z-Score, O-Score and M-Score generate returns that exceed the market average across geographies, thus emphasising that manipulation screening models can be integrated into investment strategies.

When the literature on the restaurant sector is reviewed, no study has been found in our review that directly measures the earnings manipulation risk using the Montier C-Score model. However, it has been observed that studies on earnings manipulation and earnings management for restaurant companies have been carried out in recent years with different methods. Upneja et al. (2008) examined the effects of earnings manipulation on market capitalisation in publicly traded restaurant firms. The study found a positive and significant relationship between earnings manipulation indicators and stock price increases. Yost & Croes (2016) examined the factors that increase the risks of financial manipulation in publicly traded restaurant companies. In the study, it is stated that weak corporate governance structures, high financial leverage, high employee turnover rate and rapid increase in international sales may increase the risk of

financial manipulation. Freitas (2019) analysed the impact of franchising degree on earnings management in restaurant companies and compared its impact on restaurant and hospitality sectors. As a result of the study, it was found that there is a positive relationship between the degree of franchising and earnings management, but this relationship is weaker than in accommodation companies. Gim, Choi & Jang (2019) examined the earnings management tendencies of franchise restaurants. The study concluded that the franchise structure can increase earnings management practices due to the flexibility of accounting policies. In addition, franchise restaurants were found to have higher levels of earnings management practices compared to independent restaurants. Consequently, the application of the Montier C-Score in the restaurant sector represents a novel approach in this study.

When the above literature is evaluated in general, it is possible to say that there is no study on the use of the Montier C-Score to assess the risk of earnings manipulation in the restaurant industry. This deficiency becomes more important when the unique accounting dynamics of the restaurant industry are taken into account. It is hoped that this article will contribute to the literature in the context of evaluating the earnings manipulation risk by applying the Montier C-Score in the financial statements of restaurant companies traded in Borsa Istanbul and revealing its relationship with profitability performance.

DATA AND METHODOLOGY

Data

In the study, firstly, the earnings manipulation risks of five restaurant companies whose stocks are traded in the BIST Hotels and Restaurants sector were measured by Montier-C Score method using the balance sheet, income statements and cash flow statement data for the years 2021-2024. Then, the calculated C-Scores of these companies were divided into groups in terms of risk, and the return on assets (ROA), return on equity (ROE) and return on sales (ROS) ratios of each companies for the years 2021-2024 were calculated to determine whether they are indicators of profitability performance in the current year. The reason for choosing the C-Score calculation period as 2021-2024 is that this time period is determined as the most appropriate period in terms of accessing all financial data of the five companies in a complete and consistent manner. The financial data of the restaurants whose shares are traded in the BIST Hotels and Restaurants sector were obtained from the website of the Public Disclosure Platform (Kamuyu Aydınlatma Platformu, 2025). Consequently, the sample encompasses the entire population of restaurant-focused firms in this sector, as no additional firms were available for inclusion. The sample selection was based on factors such as data availability and financial statement consistency. The sample of five firms is deemed sufficient for applying the Montier C-Score, as it represents the entire sector and the method is designed for firm-level analysis.

The names and stock exchange codes of the five companies analysed; Baydöner Restoranları A.Ş. (BYDNR), Büyük Şefler Gıda Turizm Tekstil Danışmanlık Organizasyon Eğitim Sanayi ve Ticaret A.Ş.

(BIGCH), DO & CO Aktıengesellschaft (DOCO), Etiler Gıda ve Ticari Yatırımlar Sanayi ve Ticaret A.Ş. (ETILR) and Tab Gıda Sanayi ve Ticaret A.Ş. (TABGD). Ethics committee approval is not required since the research does not involve direct surveys, interviews or laboratory data collection on humans and animals, and analyses are performed on the data in the financial statements and stock exchange data disclosed to the public by the restaurants whose stocks are traded on the stock exchange.

Method

In the study, firstly, earnings manipulation risks were measured using the Montier-C Score method using the balance sheet, income statements and cash flow statements of the restaurants for the years 2021-2024. The Montier C-Score is an evaluation system developed to reveal the possibility of earnings manipulation in companies' financial statements and stands out as a guiding tool for investors, analysts, and regulators. The C-Score is particularly valuable for investors employing short positioning strategies, as companies with high manipulation risk may be more likely to experience stock price declines, making them attractive targets for short sellers (Montier, 2008). This model, introduced by James Montier in his 2008 book Value Investing: Tools and Techniques for Intelligent Investment, is based on six key indicators to identify unusual trends in accounting practices. It is based on analyses of extensive company data over a wide period of time from the 1990s to the 2000s and aims to identify companies at risk of financial manipulation at an early stage. The six criteria considered in the model are: (1) an increase in the gap between net income and cash flow from operating activities, (2) a longer collection period for receivables, (3) a longer inventory turnover period, (4) an increase in other current assets relative to sales, (5) a decrease in depreciation relative to gross fixed assets, and (6) abnormal increases in total asset growth. For each criterion, a score of 1 is given if a risk of manipulation is detected, and a score of 0 is given if there is no risk. The total score obtained is evaluated as 0 (no risk), 1-2 (low risk), 3-4 (medium risk) or 5-6 (high risk) (Montier, 2008). The Montier C-Score is calculated based on the sum of six key criteria, expressed by the following formula:

Montier C-Score= Criterion 1 + Criterion 2 + Criterion 3 + Criterion 4 + Criterion 5 + Criterion 6

In this formula, each criterion evaluates the presence of a specific anomaly that may indicate earnings manipulation, assigning a score of 1 (anomaly present) or 0 (anomaly absent). The definitions, calculation methods and scoring principles of the variables used in this model are explained in detail below.

- Difference Between Net Income and Cash Flow from Operating Activities (Criterion 1): This criterion compares the net income for the current year (t) with cash flows from operating activities. According to accounting principles, sales revenues are recorded on an accrual basis in the period they are earned, even if not collected in cash, typically recognized as accounts receivable. However, a persistent and abnormally large excess of net income over cash flow from operating activities may indicate accrual-based

manipulations, such as premature revenue recognition or the creation of fictitious revenues. In the restaurant sector, for instance, a restaurant chain might prematurely recognize revenues not yet collected (e.g., from future reservations or discounted sales) to inflate sales figures. Such practices could signal earnings manipulation to present financial results as stronger than they actually are. For Criterion 1, if the net income in the current year exceeds the cash flow from operating activities, it is considered a manipulation risk, and a score of 1 is assigned. If cash flow from operating activities is greater than or equal to net income, a score of 0 is assigned. This metric is a critical indicator for assessing financial reliability, particularly in fast-growing restaurant chains, where high accruals are common and manipulation risks may be elevated (Montier, 2008). The calculation and scoring of the criterion is as follows (Parikh & Shah, 2022);

If $\text{Net Income}_t > \text{Cash Flow From Operating Activities}_t$, then it is scored as 1 point,

If $\text{Net Income}_t < \text{Cash Flow From Operating Activities}_t$,, then it is scored as 0 point.

- Collection Period of Receivables (Criterion 2): Under this criterion, trade receivables in the current year (t) are divided by net sales, multiplied by 365 and compared with the previous year (t-1). If the collection period of receivables in the current year increases compared to the previous year, it is considered as a manipulation risk and 1 point is given. If the collection period is decreasing or unchanged, 0 points are awarded. In the restaurant industry, an increase in the collection period can often indicate a relaxation of credit terms offered to customers or the advance recognition of unrealised sales. For example, this risk may arise when a restaurant chain artificially increases sales by offering longer-term payment options to franchise or corporate customers. Such practices may cause the company to disclose revenues that are not supported by actual cash flows and weaken the reliability of financial statements. In addition, an increase in collection periods may suggest that the company is experiencing liquidity problems or that it is stretching its accounting policies to make its financial outlook look favourable. This criterion is an important metric to assess the authenticity of sales and transparency of collection processes, especially in restaurants with high customer traffic and high turnover. The calculation and scoring of the criterion is as follows (Pedchenko et al., 2022);

If $(\text{Trade Receivables}_t / \text{Net Sales}_t) \times 365 > (\text{Trade Receivables}_{t-1} / \text{Net Sales}_{t-1}) \times 365$, then it is scored as 1 point.,

If $(\text{Trade Receivables}_t / \text{Net Sales}_t) \times 365 < (\text{Trade Receivables}_{t-1} / \text{Net Sales}_{t-1}) \times 365$, then it is scored as 0 point.

- Days Inventory Outstanding (Criterion 3): This criterion is used to show how long a company consumes its existing inventories. The average inventory holding period is calculated by dividing the current year's (t) inventory amount by the cost of sales and multiplying by 365 and compared with the previous year's (t-1) value. If the inventory turnover period has increased in the current year, this may indicate that either sales have slowed down or inventories are overstated. Particularly in restaurant

businesses, increased inventory turns may indicate problems such as holding food raw materials before they are consumed, disruptions in supply chain management, or covering up a decline in demand. Such an increase is an indication of manipulative practices such as misstating costs or overstating performance, in which case 1 point is awarded. Conversely, if inventory turnover has decreased or remained constant, the risk of manipulation is considered low and a score of 0 is awarded. This criterion can also provide important information in terms of ingredient freshness, menu planning and inventory control in restaurants. The calculation and scoring of the criterion is as follows (Khatwani et al., 2024);

If $(\text{Inventories}_t / \text{Cost of Goods Sold}_t) \times 365 > (\text{Inventories}_{t-1} / \text{Cost of Goods Sold}_{t-1}) \times 365$, then it is scored as 1 point.

If $(\text{Inventories}_t / \text{Cost of Goods Sold}_t) \times 365 < (\text{Inventories}_{t-1} / \text{Cost of Goods Sold}_{t-1}) \times 365$, then it is scored as 0 point.

- Other Current Assets to Sales Ratio (Criterion 4): This indicator is calculated by dividing the amount of other current assets in the current year (t) by total net sales, and then comparing this ratio with that of the previous year (t–1). An increase in this ratio may suggest that certain items have been deliberately classified as assets in order to present a more favourable picture of the company's financial performance. In the context of restaurant companies, this may be associated with practices such as recording unearned revenues (e.g., prepaid services yet to be delivered) or uncertain deposits under current assets. Such a trend could indicate an attempt to portray a stronger financial position than actually exists. If the ratio increases, the company is considered to carry a risk of earnings manipulation, and a score of 1 is assigned. Conversely, if the ratio remains unchanged or decreases, it is interpreted as a lower manipulation risk, and the company receives a score of 0. The scoring method is defined as follows (Govender, 2013):

If $(\text{Other Current Assets}_t / \text{Net Sales}_t) > (\text{Other Current Assets}_{t-1} / \text{Net Sales}_{t-1})$, then it is scored as 1 point.

If $(\text{Other Current Assets}_t / \text{Net Sales}_t) < (\text{Other Current Assets}_{t-1} / \text{Net Sales}_{t-1})$, then it is scored as 0 point.

- Depreciation Ratio (Criterion 5): This criterion is based on comparing the ratio of depreciation expense to gross property, plant, and equipment in the current year (t) with the same ratio in the previous year (t–1). A decline in this ratio may indicate that the company is attempting to overstate the value of its fixed assets or deliberately underreport depreciation expenses. In the restaurant industry, such practices may occur in the depreciation of kitchen equipment, furnishings, or building investments, leading to financial statements that do not reflect the company's true financial position. A decreasing depreciation ratio can be a signal of manipulation, such as artificially extending the useful life of assets or changing the depreciation method. These situations are considered indicators of financial manipulation risk and are

scored as 1 point. Conversely, if the ratio remains stable or increases, the risk is considered low and scored as 0 points. The calculation and scoring of the criterion are as follows (Parikh & Shah, 2022):

If (Depreciation Expense$_t$ / Gross Property, Plant and Equipment$_t$) < (Depreciation Expense$_{t-1}$ / Gross Property, Plant and Equipment$_{t-1}$), then it is scored as 1 point.

If (Depreciation Expense$_t$ / Gross Property, Plant and Equipment$_t$) > (Depreciation Expense$_{t-1}$ / Gross Property, Plant and Equipment$_{t-1}$), then it is scored as 0 point.

- Asset Growth (Criterion 6): This indicator measures the extent to which total assets in the current year (t) have expanded compared to the previous year (t–1). If the growth rate exceeds 10%, it is assumed that the company has experienced an unusually rapid expansion of its assets, and a score of 1 is assigned under the Montier C-Score model, indicating a potential risk of earnings manipulation. If the growth is below 10% or negative, the risk is considered low and scored as 0. In the context of the restaurant industry, very rapid asset growth—such as the opening of multiple new branches in a short time, sudden increases in kitchen equipment investments, or the recording of high-cost "renovation" expenditures—may indicate that certain items have been overstated or that fictitious investments have been added to the balance sheet. Therefore, exaggerated asset growth is regarded as a red flag that may undermine the reliability of financial statements. This criterion provides a quick indication of whether the growth strategies of restaurant chains are sustainable or artificially inflated. The calculation and scoring are as follows (Khatwani et al., 2024):

If (Total Assets$_t$ – Total Assets$_{(t-1)}$) / Total Assets$_{(t-1)}$ > 10%, then it is scored as 1 point.

If (Total Assets$_t$ – Total Assets$_{(t-1)}$) / Total Assets$_{(t-1)}$ ≤ 10%, then it is scored as 0 point.

After calculating the Montier C-Scores of the restaurant companies, the annual ROA, ROE, and ROS ratios were computed for each company to examine the relationship between earnings manipulation risk and profitability performance. The correlation between the calculated C-Scores and each profitability indicator was analyzed using correlation analysis. Additionally, the companies were ranked from highest to lowest based on their average C-Scores during the analysis period, and the average ROA, ROE, and ROS ratios of these companies were compared and interpreted to assess differences in profitability across varying levels of manipulation risk.

Return on Assets (ROA), Return on Equity (ROE), and Return on Sales (ROS) are among the key indicators of financial performance and are critical for evaluating a firm's efficiency in resource utilization and profitability structure. ROA is calculated by dividing net income by total assets and reflects a company's ability to convert its assets into profit (Brigham & Houston, 2019). This ratio is particularly important in asset-intensive industries such as the restaurant sector, as it provides insight into how efficiently fixed assets are being utilized.

ROA = Net Income / Total Assets.

ROE, calculated by dividing net income by shareholders' equity, indicates the return generated on investors' capital.

ROE = Net Income / Shareholders' Equity.

ROE is a particularly critical indicator for monitoring capital profitability in restaurant chains that grow primarily through equity financing rather than external borrowing (Palepu, Healy & Peek, 2016). A high ROE increases a restaurant's attractiveness to investors; however, if such profitability results from financial manipulation—such as understating expenses to inflate net income—it may not be sustainable in the long term.

ROS is calculated by dividing net income by net sales:

ROS = Net Income / Net Sales.

ROS indicates how much profit a company earns per unit of sales (Akgüç, 2013). In the restaurant industry—where food and beverage costs, labour, and rent expenses are typically high—ROS tends to be lower than in other sectors. Nonetheless, it offers valuable insights into pricing strategies, cost management, and operational efficiency (Harrison & Enz, 2005). Strategies such as menu engineering, cost control, and operational efficiency have been observed to directly influence ROS. In summary, when evaluated together, these three ratios provide a comprehensive picture of a restaurant's financial health, return to investors, and operational effectiveness. However, their reliability must be assessed with caution due to the risk of accounting manipulation.

Theoretically, the relationship between the Montier C-Score and profitability ratios is considered to be positive in the short term but inverse in the long term. The C-Score model developed by Montier (2008) aims to detect whether companies are at risk of financial manipulation and indirectly reveals whether profitability ratios deviate from economic reality. The six components that constitute the C-Score generally point to attempts to portray a company's operational performance as stronger than it actually is through financial reporting. For example, instances such as net income exceeding operating cash flow, lengthening of collection periods, slower inventory turnover, and reduced depreciation expenses (Montier, 2008; Parikh & Shah, 2022) may indicate that a company is artificially inflating its profits. In this context, although companies with high C-Scores may exhibit elevated profitability indicators such as ROA, ROE, and ROS in the short term, these may not reflect actual performance over the long term. Inflated profits through manipulation are not sustainable, and unless supported by cash flows, a company's financial health deteriorates. Therefore, companies with low C-Scores are more likely to present reliable financial statements, with profitability ratios reflecting genuine performance, whereas the reliability of these ratios in high C-Score firms should be questioned (Govender, 2013; Khatwani et al., 2024). Hence, an increase in the Montier C-Score may signal artificially boosted profitability in the short term.

FINDINGS

As part of the research, calculations related to the six criteria for restaurant companies listed on Borsa Istanbul (BIST) for the years 2021–2024 were conducted in Excel, and based on the resulting values, the Montier C-Scores were determined. The annual scores for the five companies are presented and interpreted in Table 1. Due to their public status, company names are anonymized and coded. Raw data and criteria-specific results are provided in the appendix.

Table 1: Montier C-Score Findings of Restaurant Companies

Company A	2021	2022	2023	2024	Mean
Criterion 1	0	0	0	0	0
Criterion 2	0	0	1	0	0,25
Criterion 3	1	1	0	0	0,50
Criterion 4	1	0	1	0	0,50
Criterion 5	1	0	1	1	0,75
Criterion 6	1	1	1	1	1
Montier C-Score	4	2	4	2	3
Company B	2021	2022	2023	2024	Mean
Criterion 1	0	0	0	0	0
Criterion 2	0	0	0	1	0,25
Criterion 3	1	0	0	0	0,25
Criterion 4	1	0	0	1	0,50
Criterion 5	1	0	1	1	0,75
Criterion 6	1	1	1	1	1
Montier C-Score	4	1	2	4	2,75
Company C	2021	2022	2023	2024	Mean
Criterion 1	0	0	0	0	0
Criterion 2	0	0	1	1	0,50
Criterion 3	0	0	0	0	0
Criterion 4	0	0	0	1	0,25
Criterion 5	1	0	1	1	0,75
Criterion 6	1	1	1	1	1
Montier C-Score	2	1	3	4	2,5
Company D	2021	2022	2023	2024	Mean
Criterion 1	1	1	1	1	1
Criterion 2	1	0	0	0	0,25
Criterion 3	1	0	1	0	0,50
Criterion 4	1	0	1	0	0,50
Criterion 5	1	1	0	0	0,50
Criterion 6	1	1	1	1	1
Montier C-Score	6	3	4	2	3,75

Company E	2021	2022	2023	2024	Mean
Criterion 1	0	0	0	0	0
Criterion 2	1	0	0	1	0,50
Criterion 3	1	0	1	0	0,50
Criterion 4	0	0	1	0	0,25
Criterion 5	1	0	0	1	0,50
Criterion 6	1	1	1	1	1
Montier C-Score	4	1	3	3	2,75

When the Montier C-Score findings of Company A are examined, it is observed that the C-Score value was 4 in 2021 and 2023, whereas it declined to 2 in 2022 and 2024. The fact that the C-Score was measured as 4 in 2021 and 2023 indicates that the company carried a moderate level of earnings manipulation risk during these years. In contrast, the decrease of the C-Score to 2 in 2022 and 2024 suggests a lower risk of manipulation in those periods. The company's average C-Score over the analysis period is 3, indicating that the overall risk of manipulation remained at a moderate level. Evaluating the entire four-year period, it is noteworthy that Criterion 6 (Asset Growth) was the most frequently triggered indicator of potential manipulation based on the Montier C-Score model (mean: 1). This finding indicates that the company experienced asset growth exceeding 10% throughout the period, which may signal potential manipulation. In the restaurant industry, growth typically stems from new branch openings, investment projects, or inflated balance sheet items due to high inflation. However, excessive growth may sometimes be associated with fictitious investments or the overstatement of assets through accounting practices. Criterion 5 (Depreciation Rate) also stands out with an average score of 0.75. A decrease in the depreciation rate may reflect an attempt to extend the useful life of equipment or real estate assets in the restaurant sector. This is considered a common accounting technique used to artificially boost profitability. Criterion 3 (Days Inventory Outstanding) and Criterion 4 (Other Current Assets-to-Sales Ratio) also carry a moderate level of risk, each with an average score of 0.50. In restaurant operations, where food inventories are significant, a slowdown in inventory turnover may indicate reduced operational efficiency or inflated revenue. Similarly, an increase in the ratio of other current assets to sales may point to potentially manipulative practices such as classifying certain expenses as assets. Overall, the Montier C-Score profile of Company A suggests a moderate likelihood of earnings manipulation, with persistent risks observed in specific criteria. In particular, growth and depreciation practices should be monitored closely.

Upon examining the findings for Company B, it is observed that the Montier C-Score was 4 in both 2021 and 2024, indicating a moderate level of earnings manipulation risk in those years. In contrast, the C-Score dropped to 1 in 2022, suggesting a low risk of manipulation. The company's four-year average C-Score is 2.75, pointing to a generally moderate manipulation risk. During the analysis period, the criterion

with the highest average score was Criterion 6 (Asset Growth). Scoring 1 point each year, this criterion indicates that the company consistently increased its assets at high rates, potentially due to aggressive investment or balance sheet expansion strategies. This finding aligns with common industry practices such as branch expansion and capacity increases in the restaurant sector. In addition, Criterion 5 (Depreciation Rate) stands out with an average score of 0.75, suggesting the possibility that the company overstated the value of fixed assets or understated expenses, thereby inflating profits. On the other hand, the company received 0 points for Criterion 1 (Difference Between Net Income and Cash Flow from Operating Activities) in all four years, indicating that reported profits were supported by operating cash flows, and thus manipulation risk from this perspective is low. Overall, while the company displays a low-risk profile in some criteria, it appears to lean toward portraying stronger profitability through asset growth and depreciation adjustments.

Upon examining the Montier C-Score values of Company C, the score was 2 in 2021 and reached its lowest level of 1 in 2022. However, it increased to 3 in 2023 and 4 in 2024. The average score was calculated as 2.5, indicating a moderate level of earnings manipulation risk over the analysis period. The upward trend in the score suggests that the likelihood of manipulation may have increased, especially in the last two years. In terms of individual criteria, Criterion 6 (Asset Growth) received 1 point in all years, with an average score of 1, indicating that the company experienced asset growth exceeding 10% annually. While this may be explained by new branch investments, franchising initiatives, or balance sheet-expanding acquisitions, rapid growth that is not evaluated for sustainability may sometimes be the result of inflated financial statements. Criterion 5 (Depreciation Rate) also stands out with an average of 0.75, suggesting that depreciation expenses related to fixed assets may have been understated to boost net income. In the restaurant sector, even minor deviations in valuing costly assets such as kitchen equipment, furniture, and décor can significantly affect profitability. Criterion 2 (Receivables Collection Period) received 1 point in the last two years, resulting in an average of 0.50, which reflects a moderate risk level. The lengthening of the collection period could be due to changes in the customer portfolio or more relaxed credit policies. However, it may also indicate risky practices such as early revenue recognition or recording uncollectible receivables to inflate earnings. Overall, Company C’s financial statements exhibit moderate manipulation signals, particularly in the areas of growth, depreciation, and receivables management. Given the cash-flow-driven nature of the restaurant industry, such discrepancies should be carefully monitored and closely audited to ensure financial sustainability

When examining the Montier C-Score values of Company D, it is observed that the company received the maximum score of 6 in 2021, which then decreased to 3 in 2022, rose again to 4 in 2023, and fell to 2 in 2024. The average score of 3.75 represents the highest average Montier C-Score among the companies analyzed, indicating that Company D carried the highest risk of earnings manipulation

throughout the period. From a criterion-based perspective, Criterion 1 (Difference Between Net Income and Cash Flow from Operating Activities) received 1 point in all years, suggesting that net income consistently exceeded cash flows from operations. This signals that earnings were not sufficiently backed by cash flows, which in the restaurant industry may result from promotional sales, coupon campaigns, or early recognition of deferred revenues. Another noteworthy finding is that Criterion 6 (Asset Growth) also received 1 point each year, indicating asset growth exceeding 10% annually. In the context of restaurant chains, such rapid growth may reflect aggressive balance sheet expansion strategies aimed at impressing investors, and it significantly contributes to manipulation risk. Criteria 3 (Days Inventory Outstanding), 4 (Other Current Assets / Revenue), and 5 (Depreciation Ratio) all have average scores of 0.50, reflecting a moderate level of risk. These indicators suggest that accounting practices aimed at improving financial statements may have been applied, particularly in the management of inventories, other current assets, and fixed assets. Criterion 2 (Collection Period of Receivables) signalled risk only in 2021, with an average score of 0.25, indicating low risk in this area. However, this lower score is not sufficient to offset the strong signals from the other criteria. In summary, the financial statements of Company D indicate a high risk of earnings manipulation, particularly due to inconsistent support of profitability by cash flow, aggressive growth, and potential inflation of inventory and asset accounts. Given the revenue-driven and capital-intensive nature of the restaurant industry, such discrepancies may be masked in the short term but pose significant risks to long-term sustainability.

When examining the Montier C-Score results of Company E, it is observed that the company received a score of 4 in 2021, 1 in 2022, and 3 in both 2023 and 2024. The four-year average is 2.75, indicating a moderate level of earnings manipulation risk. At the sub-criteria level, the most notable finding is Criterion 6 (Asset Growth), which received 1 point in all years. This suggests that the company achieved more than 10% asset growth consistently over the four-year period. Criterion 2 (Collection Period of Receivables) and Criterion 3 (Days Inventory Outstanding) both have an average score of 0.50, indicating that in certain years, collection times were extended or inventory turnover slowed down. Since restaurant operations generally rely on cash or short-term collections, increases in receivables and slower inventory turnover may reflect operational inefficiencies or accounting adjustments. Criterion 5 (Depreciation Rate) also has an average of 0.50, suggesting that the company may have inflated the value of fixed assets in some years. This could be indicative of an attempt to boost reported profits through depreciation policy adjustments, particularly in relation to kitchen equipment, furniture, or building investments commonly found in the restaurant industry. On the other hand, Criterion 1 (Difference Between Net Income and Cash Flow from Operating Activities) consistently scored 0 points over the four-year period, indicating that reported net income was aligned with operating cash flows, which reflects relatively high earnings quality. Criterion 4 (Other Current Assets / Net Sales) was triggered only in 2023, with a low average score of 0.25.

Overall, the financial statements of Company E indicate periodic earnings manipulation risk in areas such as growth sustainability, inventory and receivables management, and depreciation policies. However, the consistency between net income and cash flow partially offsets this risk. In cash-intensive and fast-cycle industries like the restaurant sector, such discrepancies serve as early warning signals that should be closely monitored. Moreover, as seen in Table 1, Criterion 6 (Total Asset Growth) has the highest average manipulation risk across all analyzed companies, with every firm receiving 1 point for this criterion. In contrast, Criterion 1 (Difference Between Net Income and Cash Flow from Operating Activities) has the lowest manipulation risk, with the lowest average score.

Table 2 below presents the annual ROA, ROE, and ROS ratios of the restaurant companies within the scope of the analysis for the period 2021–2024 in terms of their profitability performance.

Table 2: Annual Profitability Ratios of Restaurant Companies

ROA	**2021**	**2022**	**2023**	**2024**	**Mean**
Company A	0,089	0,097	0,083	-0,045	0,056
Company B	0,058	0,205	0,109	0,064	0,109
Company C	0,012	0,032	0,052	0,069	0,041
Company D	0,235	0,095	-0,030	0,051	0,088
Company E	-0,048	0,165	0,162	0,078	0,089
ROE	**2021**	**2022**	**2023**	**2024**	**Mean**
Company A	0,236	0,247	0,149	-0,094	0,135
Company B	1,637	0,597	0,207	0,128	0,642
Company C	0,077	0,161	0,189	0,214	0,160
Company D	0,282	0,208	-0,076	0,117	0,133
Company E	-1,022	0,573	0,254	0,121	-0,019
ROS	**2021**	**2022**	**2023**	**2024**	**Mean**
Company A	0,117	0,085	0,071	-0,037	0,059
Company B	0,070	0,155	0,078	0,045	0,087
Company C	0,020	0,025	0,041	0,053	0,035
Company D	0,503	0,140	-0,040	0,030	0,158
Company E	-0,034	0,112	0,123	0,060	0,065

When Table 2 is examined, it is observed that 3 restaurant companies have negative ROA, ROE and ROS values in 2021, 2023 and 2024. Company E in 2021, Company D in 2023 and Company A in 2024 were found to have negative ROA, ROE and ROS values. Companies B and C were found to have positive profitability ratios during the analysis period. It is possible to say that Company B has the highest mean ROA value with 10.9%, Company B has the highest mean ROE value with 64.2% and Company D has the highest mean ROS value with 15.8% during the analysis period. On the other hand, Company C has the lowest mean ROA value, Company E has the lowest mean ROE value and Company C has the lowest mean ROS value.

Table 3 presents the findings of the correlation analysis performed to examine the relationship between Montier-C scores and ROA, ROE and ROS values of restaurant companies for the years 2021-2024.

Table 3: Correlation Analysis

	C-Score	ROA	ROE	ROS
C-Score	1			
ROA	0,02	1		
ROE	-0,08	0,46	1	
ROS	0,39	0,83	0,29	1

According to the correlation analysis findings presented in Table 3, there is a very weak and positive relationship between Montier C-Score and ROA at the level of 0.02, and a very weak and negative relationship with ROE at the level of -0.08. These findings suggest that earnings manipulation risk is not a direct determinant of firms' return on assets and return on equity. On the other hand, there is a moderate and positive relationship between Montier C-Score and ROS at the level of 0.39. This relationship suggests that the risk of earnings manipulation increases as the ROS increases, suggesting that companies may resort to manipulative accounting practices such as recognising revenues early or recording expenses late in order to show higher margins. On the other hand, the strong positive correlation of 0.83 between ROA and ROS indicates that the higher the ROS, the higher the ROA. While this situation reveals the determining effect of net sales on profitability, the moderate positive correlation of 0.46 between ROA and ROE confirms that there is a parallelism between the efficient use of assets and ROE.

Table 4 presents the 2021–2024 C-Score means, ROA, ROE, and ROS means for the analysed restaurant companies. Firms are ranked from highest to lowest C-Score means, indicating earnings manipulation risk from high to low.

Table 4: C-Score and Profitability Means of Restaurants

Restaurants	**C-Score Mean (2021-2024)**	**ROA Mean (2021-2024)**	**ROE Mean (2021-2024)**	**ROS Mean (2021-2024)**
Company D	3,75	0,088	0,133	0,158
Company A	3,00	0,056	0,135	0,059
Company B	2,75	0,109	0,642	0,087
Company E	2,75	0,089	-0,019	0,065
Company C	2,50	0,041	0,16	0,035

When the Montier C-Score averages of the five restaurant companies included in the analysis for the period 2021-2024 are analysed together with the ROA, ROE and ROS averages, it is found that there is no unidirectional and stable relationship between manipulation risk and financial performance, but a clear

pattern is observed especially in terms of the ROS ratio. Company D (C-Score Mean: 3.75), which has the highest relative risk of earnings manipulation compared to other companies, has the highest return on sales (ROS: 15.8%) among all companies, which is consistent with the theoretical framework put forward by Montier (2008). This finding is also in line with the dynamics of the restaurant industry, which by its nature is prone to periodic performance fluctuations due to high fixed costs and margin pressure, which may increase the risk of managerial manipulation. However, the other profitability ratios, ROA and ROE, are more irregular. For example, Company B (C-Score Mean: 2.75) has the highest return on equity (ROE: 64.2%) with a relatively lower risk of manipulation, while Company E, which has a similar risk of manipulation, stands out with a negative ROE (-1.9%). This indicates that the Montier C-Score does not directly measure the level of profitability, but rather the doubts about the sustainability and quality of profitability. In terms of ROA, the highest value in the analysis (10.9%) belongs to Company B, and there is no strong relationship between this indicator and the C-Score. Company C (C-Score Mean: 2.50), which has the lowest average manipulation risk (C-Score Mean: 2.50), shows the weakest performance in terms of both ROA (4.1%) and ROS (3.5%), which may represent the tendency of honest financial reporting with low performance. As a result, only the ROS ratio showed the theoretically expected relationship with earnings manipulation risk in the analysis. As the Montier C-Score increases, the ROS ratio increases, and as the risk decreases, the ROS decreases. This result is in line with the results of the correlation analysis. On the other hand, a similar pattern was not found in ROA and ROE.

DISCUSSION AND CONCLUSION

In this study, the earnings manipulation risk of 5 restaurant companies whose stocks are traded in Borsa Istanbul Hotels and Restaurants Sector between 2021-2024 was measured by applying the Montier C-Score method developed in Montier (2008) on the financial statements of the companies. In the analysis process, 6 financial criteria used in the Montier C-Score method were calculated, scored and summed, and the obtained criteria scores and C-Score values were evaluated in terms of year, company and general context. In addition, ROA, ROE and ROS performances of the companies for the same analysis period were measured and the relationship between earnings manipulation risk and profitability performance was analysed. In this process, the relationship between C-Score values and ROA, ROE and ROS ratios were analysed by correlation analysis, and the C-Score averages of 5 companies were ranked from the highest to the lowest and the relationship between C-Scores and profitability performance was evaluated.

When the C-Scores obtained through the calculations are evaluated in general, it is observed that the restaurant companies included in the analysis sometimes received similar and sometimes different scores throughout the analysis period. The highest C-Score observed among the companies during the analysis period is 6, which was recorded by Company D in 2021. According to the Montier C-Score model,

this indicates a very high risk of earnings manipulation for that year. On the other hand, the lowest score of 1 was recorded in 2022 by Companies B, C, and E. The average C-Scores for the five restaurant companies ranged between 2.50 and 3.75. In this context, it can be stated that the earnings manipulation risks of the five publicly traded restaurant companies in the BIST Hotels and Restaurants sector are generally at a moderate level. On a company basis, there are similarities in the criteria where manipulation risk is considered high. According to the findings, the highest average earnings manipulation risk under the Montier C-Score is associated with Criterion 6 (Asset Growth), and it is notable that all the restaurant companies in the analysis received a score of 1 for this criterion.

Theoretically, excessive growth in total assets is an indicator that may increase the likelihood of earnings manipulation through aggressive accounting policies, fictitious investments, or balance sheet inflation. In the context of the restaurant industry, growth strategies based on increases in fixed assets—such as opening new branches or investing in kitchen and equipment infrastructure—can structurally heighten this risk. Therefore, asset growth in the sector not always being supported by organic profitability may be a factor that increases manipulation risk. On the other hand, Criterion 1 (Difference Between Net Income and Cash Flow from Operating Activities), which carries the lowest average manipulation risk, shows that the difference between net income and operating cash flow remains limited in the companies examined. This suggests that earnings are largely cash-based. This finding is consistent with the cash-oriented operating structure of the restaurant industry, as customer payments are predominantly made in cash or through immediately collected card transactions. This increases alignment between cash flows and accounting profits, reducing the likelihood of manipulation in this item.

These findings offer important implications for stakeholders in the sector. Company managers should document in detail and verify through independent audits the sources of asset growth (e.g., new branches or equipment purchases) in order to reduce the high manipulation risk associated with Criterion 6. Effective inventory management and transparent depreciation practices—reflected in Criteria 3 and 5—should be maintained, with stock levels aligned with sales volume and realistic depreciation policies. Investors should carefully examine companies' asset growth strategies and financial transparency due to the risks under Criterion 6 and exercise caution. In this regard, independent audit reports are of great importance in reducing investment risk. Creditors should assess the high risks associated with Criterion 6, analyze the companies' debt repayment capacity, and prioritize cash flow projections. Regulators, on the other hand, may strengthen financial transparency by imposing stricter reporting standards for Criterion 6.

In the study, when examining the relationship between earnings manipulation risk and profitability indicators such as ROA, ROE, and ROS, a moderate positive linear relationship was found between the Montier C-Score and the ROS ratio, which represents sales profitability. This result is grounded in a meaningful basis, considering both the components of the score and the structural characteristics of the

restaurant industry. Elements such as the depreciation rate, changes in gross profit margin, and other current assets which are among the criteria of the Montier C-Score can directly or indirectly affect ROS. In particular, accounting practices such as inflating profits through low depreciation expenses or non-operating income can lead to simultaneous increases in both the C-Score and the ROS. Furthermore, the restaurant sector's high fixed cost structure, low receivables risk, and intense competitive environment may increase companies' tendency to manipulate financial results to present strong sales profitability to investors. In this context, a high ROS ratio does not always indicate healthy company performance; it may at times point to the presence of earnings manipulation risk. Therefore, evaluating ROS in conjunction with models such as the Montier C-Score, within the dynamics of the industry, will provide a more holistic and reliable analysis.

The absence of a significant relationship between the Montier C-Score and the ROA and ROE ratios can be explained by both the structural characteristics of these profitability indicators and the nature of the manipulation-focused criteria within the C-Score. While ROA and ROE reflect how effectively a company utilizes its assets and equity, these ratios are more susceptible to various external factors and periodic financial strategies. In contrast, the Montier C-Score is composed of six accounting-based criteria that primarily aim to detect short-term tactical manipulations. For example, a decline in the depreciation rate or a change in inventory turnover may affect the quality of earnings but may not directly reflect asset or equity efficiency. Additionally, in the restaurant sector, high fixed costs, intensive investment needs, and the use of financial leverage can lead to significant fluctuations in ROA and ROE over time. Therefore, the lack of a consistent and linear relationship between the manipulation risk detected by the Montier C-Score and broader efficiency indicators such as ROA and ROE is both theoretically and sectorally expected. These findings underscore the importance of evaluating earnings manipulation models in conjunction with sectoral differences and company-specific dynamics.

This study was conducted using data from publicly traded restaurant companies covering the period 2020–2024. A review of the literature reveals that no prior research has examined the financial performance of Turkish restaurant companies using the Montier C-Score method, nor has any study explored its relationship with profitability performance in this context. This gap increases the significance of the present research in terms of its contribution to both the literature on the restaurant sub-sector and to investors and managers operating within the industry. In particular, the study provides important insights by testing the applicability of the Montier C-Score in the Turkish restaurant sector and identifying which areas pose a potential risk for earnings manipulation. However, the study has certain limitations. First, the sample is limited to five restaurant-focused firms listed on BIST, which may affect the generalizability of the findings. Second, Turkey's economic conditions, particularly high inflation rates, the impacts of the COVID-19 pandemic, and tax regulations, may indirectly influence manipulation risks. As the Montier C-Score focuses on relative indicators, such as the discrepancy between net income and cash flow, its direct sensitivity to inflation is limited. However, elevated inflation rates in Turkey during 2021–2024 may have indirectly

affected manipulation risks in financial reporting through increases in product prices (e.g., menu prices) and costs (e.g., food and labor expenses). The COVID-19 pandemic impacted the restaurant sector in 2021–2022 through closures and demand declines, reshaping firms' growth strategies (e.g., shifting to digital sales channels). Regarding tax changes, no sector-specific increases in special consumption tax (SCT) or value-added tax (VAT) were reported for the restaurant sector in 2021–2024; however, the general VAT rate increase to 20% in 2023 may have indirectly affected firms' cost structures. These factors were considered contextually, but detailed comparative analysis was constrained by data limitations. Additionally, the lack of data for 2019 narrowed the scope of the analysis to the period between 2021 and 2024. Future studies could address these limitations with larger samples and additional economic data. Moreover, studies investigating the relationship between earnings manipulation risk and financial distress, capital structure, firm value, and stock performance are expected to offer further contributions to the literature.

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Appendix 1. Financial Data of Company A Used in Montier C-Score Calculations

Company A	2020	2021	2022	2023	2024
Net Sales	157.039.516	278.900.205	1.549.790.549	2.807.822.423	3.467.217.884
Cost of Sales	148.319.807	230.307.571	1.190.427.268	2.172.715.797	2.949.120.091
Net Income	2.549.837	32.760.427	131.681.212	200.439.312	-129.036.520
Depreciation Expenses	47.102.706	63.582.023	341.184.456	491.801.113	443.933.188
Trade Receivables	22.368.602	22.050.826	48.193.341	94.607.512	64.878.243
Inventories	8.454.924	23.748.890	139.424.068	229.498.509	264.534.346
Other Current Assets	7.669.799	17.011.380	13.318.699	147.679.455	141.664.504
Gross Property, Plant and Equipment	21.819.700	133.575.222	426.394.835	649.016.068	887.678.499
Assets	181.510.345	366.184.225	1.362.015.066	2.401.185.674	2.861.912.113
Cash Flow From Operating Activities	33.625.195	115.349.765	143.151.745	552.601.184	-8.321.469
Collection Period of Receivables	52	29	11	12	7
Days Inventory Outstanding	21	38	43	39	33
Other Current Assets / Sales	0,05	0,06	0,01	0,05	0,04
Depreciation Exp. / Property, Plant and Equipment	2,16	0,48	0,80	0,76	0,50
Asset Growth Rate	-	1,02	2,72	0,76	0,19

Appendix 2. Financial Data of Company B Used in Montier C-Score Calculations

Company B	2020	2021	2022	2023	2024
Net Sales	157.907.614	277.672.431	1.696.380.649	3.143.242.866	3.816.638.536
Cost of Sales	109.387.703	199.389.846	1.339.090.869	2.360.336.871	2.949.014.970
Net Income	-27.671.827	19.318.756	262.631.378	246.320.828	172.682.269
Depreciation Expenses	43.887.324	56.242.255	237.180.700	404.413.480	510.765.147
Trade Receivables	23.776.822	26.939.819	140.882.220	236.181.004	388.274.855
Inventories	6.040.782	16.177.181	56.939.599	99.695.579	90.886.830
Other Current Assets	9.956.038	19.384.899	31.233.840	50.267.030	93.459.632
Gross Property, Plant and Equipment	69.862.598	93.713.088	380.293.489	711.982.152	1.112.312.912
Assets	219.791.327	332.363.520	1.283.788.335	2.264.149.376	2.716.276.282
Cash Flow From Operating Activities	11.185.865	162.611.774	369.125.598	466.945.384	789.754.898
Collection Period of Receivables	55	35	30	27	37
Days Inventory Outstanding	20	30	16	15	11
Other Current Assets / Sales	0,063	0,070	0,018	0,016	0,024
Depreciation Exp. / Property, Plant and Equipment	0,628	0,600	0,624	0,568	0,459
Asset Growth Rate	-	0,512	2,863	0,764	0,200

Appendix 3. Financial Data of Company C Used in Montier C-Score Calculations

Company C	2020	2021	2022	2023	2024
Net Sales	2.176.786.479	8.610.647.144	26.366.650.646	52.997.741.746	64.183.053.382
Cost of Sales	593.106.897	3.323.743.986	11.218.017.397	22.381.420.114	27.133.566.615
Net Income	-322.661.832	169.966.262	665.784.168	2.150.552.790	3.370.305.817
Depreciation Expenses	621.104.703	658.619.267	1.070.567.567	1.932.089.483	2.085.277.236
Trade Receivables	433.050.904	1.504.291.635	3.278.293.150	7.989.912.034	10.569.372.102
Inventories	218.625.744	432.054.315	944.278.500	1.666.334.124	1.965.386.700
Other Current Assets	1.019.569.656	1.430.192.610	1.597.769.250	1.737.330.816	3.146.455.530
Gross Property, Plant and Equipment	4.052.684.368	5.987.364.075	8.192.293.450	17.383.052.804	20.021.229.000
Assets	8.647.439.448	14.151.610.935	20.853.546.450	41.483.645.554	48.720.650.526
Cash Flow From Operating Activities	998.890.000	267.010.000	1.082.960.000	2.380.910.000	6.261.870.000
Collection Period of Receivables	73	64	45	55	60
Days Inventory Outstanding	135	47	31	27	26
Other Current Assets / Sales	0,47	0,17	0,06	0,03	0,05
Depreciation Exp. / Property, Plant and Equipment	0,15	0,11	0,13	0,11	0,10
Asset Growth Rate	-	0,64	0,47	0,99	0,17

Appendix 4. Financial Data of Company D Used in Montier C-Score Calculations

Company D	2020	2021	2022	2023	2024
Net Sales	2.394.744	29.229.424	281.316.444	477.393.092	1.214.700.324
Cost of Sales	1.453.657	19.554.281	235.387.296	414.795.193	1.040.373.170
Net Income	8.667.993	14.696.191	39.430.204	-19.242.558	36.870.758
Depreciation Expenses	675.201	610.863	4.535.421	11.733.917	18.941.278
Trade Receivables	336.373	21.015.378	169.577.855	219.221.162	328.580.845
Inventories	32.095	4.571.302	7.637.185	70.992.010	33.082.200
Other Current Assets	343.385	4.191.774	23.795.261	64.808.385	77.086.123
Gross Property, Plant and Equipment	254.276	3.495.475	92.661.183	111.151.537	137.715.387
Assets	41.304.151	62.541.701	416.276.653	639.587.859	723.294.064
Cash Flow From Operating Activities	3.933.212	-7.492.302	24.156.929	-56.424.420	-15.239.591
Collection Period of Receivables	51	262	220	168	99
Days Inventory Outstanding	8	85	12	62	12
Other Current Assets / Sales	0,14	0,14	0,08	0,14	0,06
Depreciation Exp. / Property, Plant and Equipment	2,66	0,17	0,05	0,11	0,14
Asset Growth Rate	-	0,51	5,66	0,54	0,13

Appendix 5. Financial Data of Company E Used in Montier C-Score Calculations

Company E	2020	2021	2022	2023	2024
Net Sales	2.167.306.436	3.834.030.729	16.612.128.527	28.858.468.239	35.230.058.989
Cost of Sales	2.020.290.734	3.219.098.651	14.982.437.476	23.957.130.083	29.143.137.331
Net Income	-310.111.734	-130.490.984	1.853.475.399	3.548.525.027	2.104.034.002
Depreciation Expenses	117.301.600	128.584.143	2.023.180.474	3.527.620.905	4.354.763.172
Trade Receivables	95.956.991	213.043.425	562.784.304	938.295.696	1.523.955.964
Inventories	38.312.153	81.807.842	242.721.635	407.252.611	433.060.271
Other Current Assets	103.115.893	96.430.902	287.830.656	1.231.743.516	1.129.048.669
Gross Property, Plant and Equipment	824.528.049	1.386.063.325	4.572.070.486	7.546.045.772	9.576.065.143
Assets	2.056.036.881	2.743.598.064	11.264.005.913	21.857.951.942	26.806.855.624
Cash Flow From Operating Activities	413.030.457	384.784.555	3.253.894.683	4.860.901.042	6.018.457.281
Collection Period of Receivables	16	20	12	12	16
Days Inventory Outstanding	7	9	6	6	5
Other Current Assets / Sales	0,05	0,03	0,02	0,04	0,03
Depreciation Exp. / Property, Plant and Equipment	0,14	0,09	0,44	0,47	0,16
Asset Growth Rate	-	0,33	3,11	0,94	0,23