

# THE IMPACTS OF THE COVID-19 PANDEMIC ON SECTORAL PERFORMANCE: A REVIEW ON THE BIST SECTORS IN TURKEY<sup>1</sup>

## COVID-19 PANDEMİSİNİN SEKTÖR PERFORMANSI ÜZERİNE ETKİLERİ: TÜRKİYE’DEKİ BİST SEKTÖRLERİ ÜZERİNE BİR İNCELEME

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### Öz

Bu alıřmanın amacı Covid-19 pandemisinin sektör performansı üzerine etkisini deęerlendirmek ve pandeminin hangi sektörleri nasıl etkilediđini ortaya koymaktır. Bu alıřmada, 22 alt sektör altında faaliyet gösteren toplam 250 řirketin 5 yıllık (2016-2020) finansal verileri oran analizi yöntemi ile incelenmiřtir. Arařtırma sonuçları bazı sektörlerin pandemiden olumsuz, bazılarının ise olumlu etkilendiđini göstermiřtir. Aralarında İnřaat ve Bayındırlık İřleri, Lokantalar ve Oteller, Ulařtırma ve Depolama, Spor Faaliyetleri, Eđlence ve Oyun Faaliyetleri sektörlerinin bulunduđu 10 sektörde pandeminin olumsuz etkileri ortaya çıkmıřtır. Aralarında Tarım ve Hayvancılık Avcılık ve İlgili Hizmet Faaliyetleri, Gıda, İecek ve Tütün, Orman Ürünleri ve Mobilya, Kimya İla Petrol Lastik ve Plastik Ürünler, Toptan ve Perakende Ticaret, Haberleşme ve İletişim sektörlerinin bulunduđu 12 sektörde ise pandeminin olumlu etkileri tespit edilmiřtir. Bu alıřma, Covid 19 pandemisinin sektör performansı üzerindeki olası etkilerini ortaya koymaktadır.

**Anahtar kelimeler:** Covid-19, Pandemi, Türkiye, Bist Sektörler, Sektör Performanslar

**Jel Sınıflandırması:** L25, M40, M49.

### Abstract

This study aims to evaluate the impact of the COVID-19 pandemic on sectoral performance and reveal how the pandemic has influenced certain sectors. In this study, 5-year (2016-2020) financial data of a total of 250 companies operating under 22 sub-sectors in BIST were analyzed using the ratio analysis method. The study results demonstrated that some sectors were adversely affected by the pandemic, whereas others were positively affected. The adverse impacts of the pandemic were observed in 10 sectors, including the sectors of Construction and Public Works, Restaurants and Hotels, Transportation and Storage, Sports Activities, Amusement and Recreation Activities. On the other hand, the positive impacts of the pandemic were identified in 12 sectors, including the sectors of Crop and Animal Production, Hunting and Related Service Activities, Food, Beverage and Tobacco, Wood Products Including Furniture, Chemicals, Petroleum, Rubber and Plastic Products, Wholesale and Retail Trade, and Telecommunication. This study reveals the possible impacts of the COVID-19 pandemic on sectoral performance.

**Keywords:** COVID-19, Pandemic, Turkey, BIST Sectors, Sectoral Performances.

**JEL Classification:** L25, M40, M49.

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## 1. Introduction

The first case of COVID-19 was detected in the city of Wuhan, China, in December 2019, and then it became a public health crisis that spread rapidly worldwide and is still continuing. After thousands of people died, the World Health Organization (WHO) declared the COVID-19 disease an unprecedented pandemic on March 11, 2020. On this date, the first case of COVID-19 was detected in Turkey and the critical process that affected the world also started for Turkey. As of October 15, 2021, COVID-19 infected 240,702,819 people worldwide and caused 4,902,368 deaths. As of the same date, it caused 7,601,626 cases and 67,225 deaths in Turkey (<https://www.worldometers.info/coronavirus/#countries>).

The quick spread of the outbreak has required many measures to be taken within the scope of struggling with the outbreak. In Turkey, as in many countries, the spread of the outbreak was tried to be slowed down by applying travel and lockdown restrictions, social distancing rules, quarantine, distance education, full and partial closure processes. COVID-19 adversely affected the world economy in addition to national economies, and the rapid decrease in global demand brought the world trade to a standstill. Economic activity in many sectors, from the services sector to the manufacturing industry, shrank rapidly due to falling demand and supply-side problems (Özatay and Sak, 2020). The pandemic caused significant economic effects in different sectors of the economy, which adversely affected global trade, interest rates, financial market liquidity and created demand and supply shocks (Roy, 2020). Some sectors were affected by demand shocks (transportation), some by supply shocks (manufacturing and mining), and some by both (amusement, restaurants and tourism) (Susskind and Vines, 2020). COVID-19 not only caused infections and deaths but also caused damage in the global economy on a scale not observed since the Great Depression (Laing, 2020).

The pandemic affected the sectors, and concerning the direction of this effect, the adverse effects of the pandemic were observed in some sectors (Barrot et al., 2020; Mhalla, 2020; Yang et al., 2020; Karim et al., 2020; Tayar et al. 2020), while the positive effects were observed in the others (Kılıç, 2020; Göker et al., 2020). Especially in sectors such as transportation and tourism, which emerged with human mobility, full and partial closure measures, travel restrictions, and the closure of hotels and restaurants caused these sectors to be adversely affected by the pandemic (Akça, 2020; Ahmad et al., 2020). Moreover, sports competitions being held without spectators and the closure of cinemas and theaters during this period also caused the performances of enterprises operating in the sports, arts and entertainment sectors to be adversely affected. People's stay at home and carrying out entertainment and communication processes from home during the pandemic caused the positive effect of the pandemic to emerge, especially in the communication process. Furthermore, the fact that people acted following the instinct of meeting their basic needs during this extraordinary period also caused the positive effects of the pandemic in sectors such as food and chemistry.

In order for the governments and public institutions to be able to take effective measures to minimize the economic effects of the pandemic, it is necessary to assess which sector needs support, the current situation of the sector and the challenges faced by the sector. While academic studies contribute to the literature with the findings presented, they also serve this purpose and offer solution proposals that will minimize the economic effects of the COVID-19 pandemic. The current study was conducted to assess the impact of the COVID-19 pandemic, lasting for approximately 2 years, on the performance of the sector and reveal which sectors and how were affected by the pandemic. To that end, the 5-year (2016-2020) financial data of a total of 250 companies operating under 22 sub-sectors in BIST were analyzed by the ratio analysis method. Net profit margin ratios, return on assets ratios, and return on equity ratios were calculated within the scope of performance indicators. Additionally, changes in the net profit, net sales, total assets, and equity items needed for the calculation of these ratios in a 5-year period were subjected to horizontal analysis and the possible impact of COVID-19 on these components was evaluated.

## 2. Literature Review

There are studies in the literature investigating the impacts of the COVID-19 pandemic on sectors.

In the study carried out by Barrot et al. (2020), the impacts of social distancing rules on the sectoral and Gross Domestic Product were analyzed in the case of France and other European countries within the scope of combating covid-19. In the study, revealing how social distancing disrupted national production by reducing the amount of labor, the data in the international input-output tables of the "World Input-Output Database" (WIOD, version 16) divided into 54 sectors were used. The study found that, in addition to sectors directly related to social distancing measures, those in which the added value decreased at most were sectors farthest from final demand.

In his study (2020), Roy analyzed the economic impact of covid-19 on the tourism, oil, aviation, finance, and health sectors. The study indicated that the impact of the pandemic was felt considerably in the health, aviation, oil, and tourism sectors. Moreover, it was stated that uncertainty, volatility, and risk were observed in the financial sector, there was a sudden decrease in the stock markets, and the pandemic caused a loss of approximately 30% in the market value within a few weeks.

In the study investigating the impact of covid-19 on the global oil and aviation sectors, Mhalla (2020) analyzed the adverse effects of the pandemic on these two sectors. In the study stating that if the pandemic continued, the global economy, especially in China, might be adversely affected, the researcher indicated that the recent negative impact of covid-19 might emerge in the air transportation and aviation sector, and the long-term negative impact might emerge in the world oil production.

In the study examining the impacts of covid-19 on the mining sector, Laing (2020) stated that the crisis had the potential to have significant consequences for the sector in the short, medium, and long terms. It was expressed that prices and production would be affected in the mining sector in the short term and the profitability of the sector would decrease, while the medium-long term effects were completely uncertain.

In the study performed by Yang et al. (2020), the impact of coronavirus on tourism in China was evaluated using the Dynamic Stochastic General Equilibrium Model. The researchers revealed that the longer and greater risk of a health disaster would plunge the tourism industry and the overall economy into an abyss.

Karim et al. (2020) investigated the impacts of movement and travel restrictions applied within the scope of combating the covid-19 outbreak on the Malaysian tourism and accommodation sector. In the conceptual study benefiting from various sources published by the government, the number of passengers of airline companies and the number of people staying in hotels were examined to obtain information about the tourism sector. It was stated that covid-19 adversely affected not only tourism but also the aviation sector of the country.

Kumar (2020) aimed to investigate the impact of covid-19 on the tourism and hotel industry in India. The study indicated that the pandemic would cause a decrease of up to 30% in international tourism and a loss of 300-450 billion dollars in tourism revenues. The study stating that tourism in India would be adversely affected by the pandemic emphasized that Indian stakeholders should take early steps to assess the situation. It was stated that the aviation sector was also affected by this process in the worst way and this could cause a financial crisis in the sector.

Lu et al. (2021) employed the survey method in their study to understand the impact of covid-19 on SMEs in China and propose public policies to cope with the adverse effects. According to the study results, the impacts of covid-19 differed according to the manufacturing sub-sectors. It was indicated that the industrial sector was affected by covid-19 in terms of weak logistics, supply chain management of the manufacturing industry, short-term pressures of the new economy industrial sector, and the need to accelerate the online services of the wholesale and retail trade sector.

Akça (2020) examined the economic impact of the outbreak on the aviation sector and made evaluations on the current situation through Turkey's aviation sector indicators. In the study, it was stated that the pandemic caused high losses in the aviation sector and it was expected to occur. It was expressed that the pandemic would considerably affect important sectors for Turkey, such as the tourism sector, dependent on the aviation sector.

In their study, İnce et al. (2021) examined the economic and social impacts of covid-19 on pharmacies, veterinary and optician firms operating in the health sector. In the study with the sample consisting of 300 enterprises, qualitative and quantitative research methods were used together. According to the study results, enterprises operating in the health sector were adversely affected economically during the pandemic.

Korkut et al. (2020), aiming to reveal the impact of covid-19 on the tourism sector, examined the effect of the number of daily covid-19 cases and deaths on the BIST Tourism Index using the ARDL limit test. According to the short-term coefficient estimates of the study, it was observed that covid-19 adversely affected the stock prices of the firms in the BIST Tourism index, and the relationship was positive according to the long-term coefficient estimates.

Türkmen and Özсарı (2020) investigated the impacts of covid-19 on the sports sector using the screening method. In the study, it was indicated that the pandemic caused the postponement of sports activities and accordingly caused considerable damage to the sector. However, it was stated that this situation created an opportunity for the digitalization of sports activities and products and the reproduction of the sports paradigm.

In his study, Kılıç (2020) examined the impact of covid-19 on the BIST sector returns using the event study method. The study found that the impact of the pandemic on the sectors was generally negative, but some sectors were positively affected by the pandemic. It was observed that the highest negative returns on a sector basis were in the tourism and textile sectors, while the positive returns were in the trade sector.

In their study, Göker et al. (2020) aimed to analyze the impact of the covid-19 outbreak on BIST sector index returns. The event study method was used in the study, addressing 26 sector indices in BIST. In general, it was found that the sectors most adversely affected by the outbreak were sports, tourism and textile sectors, while positive CAAR values were identified in the main consumption sectors, namely food, chemistry and banking sectors.

Öztürk et al. (2020) aimed to empirically examine the impact of the outbreak on financial markets. In the study, the economic impacts at the sectoral level caused by the pandemic were attempted to be explained by examining the daily data using the fixed effects method. According to the study findings, the pandemic influenced the metal products and machinery sectors at most in terms of adverse economic impacts, followed by the sports, banking, and insurance sectors. It was stated that the food and beverages, wholesale-retail and real estate investment sectors were the least affected sectors despite the economic stagnation.

In the study carried out by Tayar et al. (2020) to observe the impact of covid-19 on the sectors in Turkey, 10 different BIST sector indices were examined. As a result of the study, the adverse impact of the pandemic was determined at certain levels of significance in the service, electricity, industrial, financial, transportation, tourism, food, textile, and technology sectors.

When the current literature is reviewed, it is observed that studies have mostly concentrated on certain sectors. Our study examined the impacts of the pandemic on sector performance in 22 sub-sectors related to BIST sectors. Our study, which aims to contribute to the literature, both in the decisions to be taken by sector officials and policy makers, is important with its evaluations regarding each sector.

### 3. Methodology

The purpose of this study is to evaluate the impact of the COVID-19 pandemic on sector performance and reveal which sectors and how are affected by the pandemic.

Companies under BIST sectors were included in the scope of this study. The financial sector was not included in the scope of the study due to the use of sector-specific financial ratios. In the study, companies whose continuous financial statements for the years 2016, 2017, 2018, 2019, and 2020 could be accessed were included in the sector totals. One company in the Chemicals, Petroleum, Rubber and Plastic Products sector, 1 company in the Construction and Public Works sector, and 1 company in the Restaurants and Hotels sector were excluded from the scope of the study since they had a larger size than the sum of the other companies in the sector, showed a different course than other companies and therefore did not make it possible to make a general evaluation of the sector. Twenty-two sectors in BIST were examined within the scope of the study. The number of sectors and companies within the scope of the study as of the date when the data collection process was completed is presented in Table 1.

**Table 1.** Sector and Company Information Within the Scope of the Study

| Sectors  | Sector No | Number of companies under sectors | Number of companies included in the sector total |
|--|-----------|-----------------------------------|--|
| Crop and Animal Production Hunting and Related Service Activities                      | 1         | 3                                 | 3  |
| Mining of Coal and Lignite   | 2         | 3                                 | 3  |
| Food, Beverage and Tobacco   | 3         | 28                                | 25   |
| Textile, Wearing Apparel and Leather   | 4         | 21                                | 21   |
| Wood Products Including Furniture  | 5         | 5                                 | 5  |
| Paper and Paper Products, Printing And Publishing                                      | 6         | 13                                | 13   |
| Chemicals, Petroleum, Rubber and Plastic Products                                      | 7         | 34                                | 29   |
| Non-Metallic Mineral Products  | 8         | 21                                | 19   |
| Basic Metal  | 9         | 18                                | 18   |
| Fabricated Metal Products, Machinery, Electrical Equipment and Transportation Vehicles | 10        | 33                                | 32   |
| Electricity, Gas and Steam   | 11        | 16                                | 9  |
| Construction and Public Works  | 12        | 9                                 | 8  |
| Wholesale Trade  | 13        | 8                                 | 7  |
| Retail Trade   | 14        | 12                                | 12   |
| Restaurants and Hotels   | 15        | 10                                | 9  |
| Transportation and Storage   | 16        | 9                                 | 8  |
| Telecommunication  | 17        | 2                                 | 2  |
| Human Health and Social Services   | 18        | 2                                 | 2  |
| Sports Activities, Amusement and Recreation Activities                                 | 19        | 4                                 | 4  |
| Information Technology   | 20        | 20                                | 17   |
| Office Administrative, Office Support and Other Business Support Activities            | 21        | 2                                 | 2  |
| Real Estate Activities   | 22        | 2                                 | 2  |
| Total  |           | 275                               | 250  |

\* Sector numbers are used in the next tables, because the sector names are long.

The ratio analysis method was used in this study. The 5-year (2016-2020) financial data of the companies were examined in terms of profitability ratios, accepted as an indicator of firm performance, to evaluate the impact of the pandemic on the sectors and reveal which sectors and how were affected. The sectors' profitability ratios were calculated over the totals of the financial statement items needed within the scope of the analysis of the companies under the sectors. The base year was accepted as 2016, and the direction of change was tried to be revealed for each year. The main reason for including the 5-year period in the scope of the study is to reveal the impacts of the

2020 pandemic process on the sector performance in real terms concerning the direction and depth of the impact, thus giving the study a dynamic structure.

#### 4. Findings

#### 4.1. Amounts and Changes of Financial Statement Items Required in the Scope of Profitability Ratios by Years

**Table 2. Sectors' Total Asset Items and Their Changes by Years (1.000TL)**

| Sectors | Total Assets        |            |        |             |        |             |         |             |         |
|---------|---------------------|------------|--------|-------------|--------|-------------|---------|-------------|---------|
|         | 2016<br>(base year) | 2017       | Change | 2018        | Change | 2019        | Change  | 2020        | Change  |
| 1       | 105,057             | 110,443    | 5.1    | 136,264     | 29.7   | 140,989     | 43.2    | 155,192     | 47.7    |
| 2       | 3,307,668           | 3,799,949  | 14.8   | 4,969,823   | 50.2   | 6,987,024   | 111.2   | 9,325,234   | 181.9   |
| 3       | 51,628,281          | 63,729,704 | 23.4   | 78,112,040  | 51.3   | 77,820,047  | 50.7    | 93,269,678  | 80.6    |
| 4       | 8,188,086           | 9,467,259  | 15.6   | 12,817,497  | 56.5   | 16,011,220  | 95.5    | 18,990,537  | 131.9   |
| 5       | 1,374,660           | 1,836,592  | 33.6   | 2,058,216   | 49.7   | 2,236,739   | 62.7    | 2,814,247   | 104.7   |
| 6       | 3,589,921           | 3,997,419  | 11.3   | 5,112,263   | 42.4   | 4,940,830   | 37.6    | 5,913,016   | 64.7    |
| 7       | 26,727,403          | 33,190,887 | 24.1   | 46,113,749  | 72.5   | 54,664,052  | 104.5   | 72,839,462  | 172.5   |
| 8       | 14,267,997          | 17,362,998 | 21.6   | 18,805,936  | 31.8   | 22,231,360  | 55.8    | 26,583,642  | 86.3    |
| 9       | 51,620,020          | 61,214,482 | 18.5   | 87,095,763  | 68.7   | 94,869,963  | 83.7    | 118,871,879 | 130.2   |
| 10      | 61,612,993          | 77,378,784 | 25.5   | 94,871,840  | 53.9   | 108,376,743 | 75.9    | 152,437,614 | 147.4   |
| 11      | 34,445,910          | 45,377,264 | 31.7   | 58,103,872  | 68.6   | 63,918,379  | 85.5    | 69,583,816  | 102     |
| 12      | 2,704,334           | 3,038,455  | 12.3   | 3,404,375   | 25.8   | 3,721,955   | 37.6    | 3,991,514   | 47.6    |
| 13      | 11,677,018          | 13,298,584 | 13.8   | 15,630,430  | 33.8   | 17,404,690  | 49      | 21,610,751  | 85      |
| 14      | 20,212,209          | 27,784,944 | 37.4   | 28,774,197  | 42.3   | 42,620,406  | 110.8   | 56,815,243  | 181     |
| 15      | 902,246             | 1,010,870  | 12     | 1,934,490   | 114.4  | 2,032,501   | 125.2   | 2,106,985   | 133.5   |
| 16      | 76,183,805          | 82,465,653 | 8.2    | 130,472,213 | 71.2   | 182,854,390 | 140     | 230,792,564 | 202.9   |
| 17      | 58,474,609          | 63,131,004 | 7.9    | 78,963,786  | 35     | 85,624,261  | 46.4    | 96,220,913  | 64.5    |
| 18      | 2,632,461           | 2,953,164  | 12.1   | 3,525,575   | 33.9   | 4,287,339   | 62.8    | 4,961,536   | 88.4    |
| 19      | 2,315,552           | 3,599,258  | 55.4   | 5,146,769   | 122.2  | 5,960,242   | 157.4   | 8,015,050   | 246.1   |
| 20      | 5,909,744           | 7,413,688  | 25.4   | 8,110,611   | 37.2   | 10,676,166  | 80.6    | 15,540,234  | 162.9   |
| 21      | 167,412             | 203,130    | 21.3   | 149,035     | -10.9  | 190,222     | 13.6    | 180,515     | 10.6    |
| 22      | 123,092             | 240,500    | 95.3   | 277,636     | 125.5  | 1,673,110   | 1,259.2 | 2,024,255   | 1,544.4 |

**Table 3. Sectors' Equity Items and Their Changes by Years (1.000TL)**

| Sectors | Equity              |            |        |            |        |            |        |            |        |
|---------|---------------------|------------|--------|------------|--------|------------|--------|------------|--------|
|         | 2016<br>(base year) | 2017       | Change | 2018       | Change | 2019       | Change | 2020       | Change |
| 1       | 54,858              | 59,243     | 7.9    | 53,425     | -2.6   | 74,605     | 36.0   | 77,939     | 42.    |
| 2       | 2,880,229           | 3,351,309  | 16.3   | 4,493,047  | 56     | 6,279,310  | 118    | 8,352,446  | 190    |
| 3       | 25,304,308          | 29,123,210 | 15     | 37,194,647 | 46.9   | 43,802,251 | 73.1   | 49,830,397 | 96.9   |
| 4       | 3,644,274           | 3,974,139  | 9      | 5,283,307  | 44.9   | 5,847,412  | 60.4   | 7,607,935  | 108.7  |
| 5       | 372,005             | 626,993    | 68.5   | 535,255    | 43.8   | 557,665    | 49.9   | 849,499    | 128.3  |
| 6       | 1,732,484           | 1,800,508  | 3.9    | 2,457,313  | 41.8   | 2,405,772  | 38.8   | 2,784,109  | 60.7   |
| 7       | 13,894,293          | 16,466,154 | 18.5   | 17,183,389 | 23.6   | 19,690,771 | 41.7   | 32,319,708 | 132.6  |
| 8       | 8,523,291           | 9,330,848  | 9.4    | 9,774,737  | 14.6   | 11,226,435 | 31.7   | 12,543,312 | 47.1   |
| 9       | 29,969,410          | 35,698,780 | 19.1   | 54,192,490 | 80.8   | 56,770,742 | 89.4   | 74,429,149 | 148.3  |
| 10      | 19,136,535          | 21,804,553 | 13.9   | 26,663,413 | 39.3   | 32,009,189 | 67.2   | 46,100,289 | 140.9  |
| 11      | 7,292,567           | 11,893,902 | 63.1   | 12,484,336 | 71.1   | 14,229,705 | 95.1   | 15,709,541 | 115.4  |
| 12      | 1,292,313           | 1,376,212  | 6.4    | 1,566,134  | 21.1   | 1,586,044  | 22.7   | 1,471,437  | 13.8   |
| 13      | 3,353,080           | 3,849,297  | 14.8   | 4,137,992  | 23.4   | 4,770,350  | 42.2   | 6,475,516  | 93.1   |
| 14      | 2,109,718           | 3,708,682  | 75.7   | 5,130,736  | 143.2  | 4,987,564  | 136.4  | 8,403,417  | 298.3  |
| 15      | 627,453             | 661,541    | 5.4    | 1,374,695  | 119    | 1,463,502  | 133.2  | 1,459,334  | 132.5  |
| 16      | 21,252,189          | 24,470,033 | 15.1   | 37,579,702 | 76.8   | 49,132,521 | 131.1  | 47,944,540 | 125.6  |
| 17      | 19,455,018          | 19,600,175 | 0.7    | 23,507,157 | 20.8   | 27,525,797 | 41.4   | 32,822,314 | 68.7   |
| 18      | 341,362             | 182,792    | -46.4  | 659,596    | 66.8   | 332,588    | -2.5   | 478,802    | 40.2   |
| 19      | -1,976,746          | -1,633,487 | 17.3   | -1,711,476 | 13.4   | -2,313,549 | -17    | -2,552,092 | -29.1  |
| 20      | 2,003,200           | 2,476,847  | 23.6   | 3,258,256  | 62.6   | 3,710,066  | 85.2   | 4,770,733  | 138.1  |
| 21      | 105,850             | 155,866    | 47.2   | 99,287     | -6.2   | 141,571    | 33.7   | 146,501    | 38.4   |
| 22      | 117,964             | 188,368    | 55.4   | 134,148    | 13.7   | 720,795    | 511    | 1,094,981  | 828.2  |

**Table 4. Sectors' Net Profit Items and Their Changes by Years (1.000TL)**

| Sectors | Net Profit          |           |        |            |        |           |        |            |        |
|---------|---------------------|-----------|--------|------------|--------|-----------|--------|------------|--------|
|         | 2016<br>(base year) | 2017      | Change | 2018       | Change | 2019      | Change | 2020       | Change |
| 1       | -2,147              | 1,269     | 159.1  | 2,629      | 222.4  | -6,039    | -181.1 | 679        | 131.6  |
| 2       | 367,042             | 1,033,378 | 181.5  | 1,185,725  | 223    | 1,778,796 | 384.6  | 1,903,665  | 418.6  |
| 3       | 698,963             | 1,845,422 | 164    | 1,904,771  | 172.5  | 4,413,948 | 531.5  | 5,500,365  | 686.9  |
| 4       | 66,600              | 311,695   | 368    | 369,560    | 454.8  | 631,074   | 847.5  | 469,488    | 604.9  |
| 5       | -80,718             | 5,428     | 106    | -77,150    | 4.4    | -60,656   | 24.8   | 79,566     | 198.5  |
| 6       | -87,454             | -138,674  | -58.5  | 554,162    | 733.6  | -40,760   | 53.3   | 180,514    | 306.4  |
| 7       | 1,727,060           | 3,043,657 | 76.2   | 2,630,150  | 52.2   | 3,681,874 | 113.1  | 4,613,693  | 167.1  |
| 8       | 994,614             | 883,431   | -11.1  | 714,058    | -28.2  | -121,913  | -112.2 | 695,832    | -30    |
| 9       | 2,466,869           | 7,072,948 | 186.7  | 11,131,672 | 351.2  | 5,567,695 | 125.7  | 6,187,167  | 150.8  |
| 10      | 4,338,356           | 4,798,650 | 10.6   | 5,859,261  | 35     | 6,419,304 | 47.9   | 14,441,743 | 232.8  |
| 11      | -613,341            | 1,044,534 | 270.3  | -1,020,481 | -66.3  | 413,397   | 167.4  | 199,547    | 132.5  |

|    |          |           |         |           |          |           |          |            |           |
|----|----------|-----------|---------|-----------|----------|-----------|----------|------------|-----------|
| 12 | 302,804  | 68,968    | -77.2   | 48,577    | -83.9    | 28,260    | -90.6    | -284,720   | -194      |
| 13 | 496,218  | 500,069   | 0.7     | 529,545   | 6.7      | 828,643   | 66.9     | 1,689,220  | 240.4     |
| 14 | -462,441 | 749,053   | 261.9   | 459,391   | 199.3    | 186,771   | 140.3    | 2,332,136  | 604.3     |
| 15 | 24,428   | 26,064    | 6.7     | -2,105    | -108.6   | 15,909    | -34.8    | -30,023    | -222.9    |
| 16 | -30,193  | 1,389,566 | 4,702.1 | 4,985,127 | 16,610.4 | 5,979,373 | 19,903.3 | -8,005,709 | -26,414.4 |
| 17 | 839,111  | 3,173,291 | 278.1   | 786,074   | -6.3     | 5,683,473 | 577.3    | 7,417,493  | 783.9     |
| 18 | -32,110  | -119,622  | -272.5  | -90,349   | -181.3   | 67,260    | 309.4    | 152,786    | 575.8     |
| 19 | -543,066 | -788,327  | -45.1   | -552,724  | -1.7     | -689,433  | -26.9    | -1,265,534 | -133      |
| 20 | 257,385  | 420,529   | 63.3    | 319,514   | 24.1     | 310,943   | 20.8     | 692,577    | 169       |
| 21 | 22,629   | 17,450    | -22.8   | 14,835    | -34.4    | 7,495     | -66.8    | -3,521     | -115.5    |
| 22 | 3,878    | 9,534     | 145.8   | -14,248   | -467.3   | 64,447    | 1,561.6  | 37,296     | 861.6     |

**Table 5. Sectors' Net Sales Items and Their Changes by Years (1.000TL)**

| Sectors | Net Sales           |            |        |             |        |             |         |             |         |
|---------|---------------------|------------|--------|-------------|--------|-------------|---------|-------------|---------|
|         | 2016<br>(base year) | 2017       | Change | 2018        | Change | 2019        | Change  | 2020        | Change  |
| 1       | 33,768              | 36,487     | 8.0    | 46,091      | 36.4   | 52,983      | 56.9    | 56,170      | 66.3    |
| 2       | 1,141,839           | 1,143,432  | 0.1    | 1,867,229   | 63.5   | 2,864,748   | 150.8   | 3,300,633   | 189.0   |
| 3       | 31,994,074          | 39,229,127 | 22.6   | 51,126,968  | 59.8   | 60,618,892  | 89.4    | 72,373,291  | 126.2   |
| 4       | 5,439,649           | 6,864,394  | 26.1   | 9,749,605   | 79.2   | 12,006,382  | 120.7   | 11,776,063  | 116.4   |
| 5       | 974,988             | 1,321,902  | 35.5   | 1,564,854   | 60.5   | 1,597,364   | 63.8    | 2,145,017   | 120     |
| 6       | 3,111,030           | 3,968,412  | 27.5   | 5,138,635   | 65.1   | 5,031,202   | 61.7    | 5,764,347   | 85.2    |
| 7       | 24,742,002          | 33,120,780 | 33.8   | 40,998,725  | 65.7   | 36,973,750  | 49.4    | 44,667,066  | 80.5    |
| 8       | 8,161,481           | 9,546,382  | 16.9   | 11,337,106  | 38.9   | 12,482,232  | 52.9    | 15,375,809  | 88.3    |
| 9       | 29,773,487          | 46,610,826 | 56.5   | 67,756,045  | 127.5  | 68,574,214  | 130.3   | 76,733,841  | 157.7   |
| 10      | 72,483,034          | 93,416,287 | 28.7   | 116,061,919 | 60.1   | 131,545,567 | 81.4    | 166,845,843 | 130.1   |
| 11      | 15,825,769          | 22,815,066 | 44.1   | 32,958,589  | 108.2  | 36,629,700  | 131.4   | 41,370,371  | 161.4   |
| 12      | 1,038,843           | 1,392,005  | 33.9   | 1,795,073   | 72.8   | 1,302,393   | 25.3    | 1,009,850   | -2.7    |
| 13      | 22,240,726          | 25,535,903 | 14.8   | 25,841,247  | 16.1   | 29,342,395  | 31.9    | 41,030,725  | 84.4    |
| 14      | 50,718,718          | 63,498,653 | 25.2   | 76,881,910  | 51.5   | 95,978,913  | 89.2    | 126,146,698 | 148.7   |
| 15      | 68,861              | 120,849    | 75.5   | 203,480     | 195.5  | 262,296     | 280.9   | 97,535      | 41.6    |
| 16      | 39,322,869          | 51,536,182 | 31.0   | 80,032,069  | 103.5  | 98,656,624  | 150.8   | 57,506,317  | 46.2    |
| 17      | 30,209,457          | 35,165,955 | 16.4   | 40,604,254  | 34.4   | 47,653,370  | 57.7    | 56,561,626  | 87.2    |
| 18      | 2,355,041           | 2,822,174  | 19.8   | 3,417,375   | 45.1   | 4,038,827   | 71.5    | 4,331,409   | 83.9    |
| 19      | 1,598,115           | 2,317,894  | 45.0   | 2,883,902   | 80.4   | 2,332,866   | 45.9    | 2,200,909   | 37.7    |
| 20      | 9,907,681           | 12,322,039 | 24.3   | 11,970,695  | 20.8   | 15,532,895  | 56.7    | 25,980,221  | 162.2   |
| 21      | 139,714             | 175,465    | 25.5   | 125,781     | -9.9   | 88,134      | -36.9   | 50,735      | -63.6   |
| 22      | 7,694               | 16,355     | 112.5  | 24,272      | 215.4  | 143,944     | 1,770.7 | 345,365     | 4,388.5 |

## 4.2. Sectors' Profitability Ratios

**Table 6. Net Profit Margin Ratios of the Sectors**

| Sectors | Net Profit Margin Ratio |       |       |       |       |
|---------|-------------------------|-------|-------|-------|-------|
|         | 2016 (base year)        | 2017  | 2018  | 2019  | 2020  |
| 1       | -0.06                   | 0.03  | 0.06  | -0.11 | 0.01  |
| 2       | 0.32                    | 0.90  | 0.64  | 0.62  | 0.58  |
| 3       | 0.02                    | 0.05  | 0.04  | 0.06  | 0.08  |
| 4       | 0.01                    | 0.05  | 0.04  | 0.05  | 0.04  |
| 5       | -0.08                   | 0.00  | -0.05 | 0.05  | 0.04  |
| 6       | -0.03                   | -0.03 | 0.11  | -0.01 | 0.03  |
| 7       | 0.07                    | 0.09  | 0.06  | 0.10  | 0.10  |
| 8       | 0.12                    | 0.09  | 0.06  | -0.01 | 0.05  |
| 9       | 0.08                    | 0.15  | 0.16  | 0.08  | 0.08  |
| 10      | 0.06                    | 0.05  | 0.05  | 0.05  | 0.09  |
| 11      | -0.04                   | 0.05  | -0.03 | 0.01  | 0.00  |
| 12      | 0.29                    | 0.05  | 0.03  | 0.02  | -0.28 |
| 13      | 0.02                    | 0.02  | 0.02  | 0.03  | 0.04  |
| 14      | -0.01                   | 0.01  | 0.01  | 0.00  | 0.02  |
| 15      | 0.35                    | 0.22  | -0.01 | 0.06  | -0.31 |
| 16      | 0.00                    | 0.03  | 0.06  | 0.06  | -0.14 |
| 17      | 0.03                    | 0.09  | 0.02  | 0.12  | 0.13  |
| 18      | -0.01                   | -0.04 | -0.03 | 0.02  | 0.04  |
| 19      | -0.34                   | -0.34 | -0.19 | -0.30 | -0.58 |
| 20      | 0.03                    | 0.03  | 0.03  | 0.02  | 0.03  |
| 21      | 0.16                    | 0.10  | 0.12  | 0.09  | -0.07 |
| 22      | 0.50                    | 0.58  | -0.59 | 0.45  | 0.11  |

**Table 7.** Return on Assets Ratios of the Sectors

| Return on Assets Ratios |                  |       |       |       |       |
|-------------------------|------------------|-------|-------|-------|-------|
| Sectors                 | 2016 (base year) | 2017  | 2018  | 2019  | 2020  |
| 1                       | -0.02            | 0.01  | 0.02  | -0.04 | 0.00  |
| 2                       | 0.11             | 0.27  | 0.24  | 0.25  | 0.19  |
| 3                       | 0.01             | 0.03  | 0.02  | 0.06  | 0.06  |
| 4                       | 0.01             | 0.03  | 0.03  | 0.04  | 0.02  |
| 5                       | -0.06            | 0.00  | -0.04 | -0.03 | 0.03  |
| 6                       | -0.02            | -0.03 | 0.11  | -0.01 | 0.03  |
| 7                       | 0.06             | 0.09  | 0.06  | 0.07  | 0.06  |
| 8                       | 0.07             | 0.05  | 0.04  | -0.01 | 0.03  |
| 9                       | 0.05             | 0.12  | 0.13  | 0.06  | 0.05  |
| 10                      | 0.07             | 0.06  | 0.06  | 0.06  | 0.09  |
| 11                      | -0.02            | 0.02  | -0.02 | 0.01  | 0.00  |
| 12                      | 0.11             | 0.02  | 0.01  | 0.01  | -0.07 |
| 13                      | 0.04             | 0.04  | 0.03  | 0.05  | 0.08  |
| 14                      | -0.02            | 0.03  | 0.02  | 0.00  | 0.04  |
| 15                      | 0.03             | 0.03  | 0.00  | 0.01  | -0.01 |
| 16                      | 0.00             | 0.02  | 0.04  | 0.03  | -0.03 |
| 17                      | 0.01             | 0.05  | 0.01  | 0.07  | 0.08  |
| 18                      | -0.01            | -0.04 | -0.03 | 0.02  | 0.03  |
| 19                      | -0.23            | -0.22 | -0.11 | -0.12 | -0.16 |
| 20                      | 0.04             | 0.06  | 0.04  | 0.03  | 0.04  |
| 21                      | 0.14             | 0.09  | 0.10  | 0.04  | -0.02 |
| 22                      | 0.03             | 0.04  | -0.05 | 0.04  | 0.02  |

**Table 8.** Return on Equity Ratios of the Sectors

| Return on Equity Ratios |                  |       |       |       |       |
|-------------------------|------------------|-------|-------|-------|-------|
| Sectors                 | 2016 (base year) | 2017  | 2018  | 2019  | 2020  |
| 1                       | -0.04            | 0.02  | 0.05  | -0.08 | 0.01  |
| 2                       | 0.13             | 0.31  | 0.26  | 0.28  | 0.23  |
| 3                       | 0.03             | 0.06  | 0.05  | 0.10  | 0.11  |
| 4                       | 0.02             | 0.08  | 0.07  | 0.11  | 0.06  |
| 5                       | -0.22            | 0.01  | -0.14 | -0.11 | 0.09  |
| 6                       | -0.05            | -0.08 | 0.23  | -0.02 | 0.06  |
| 7                       | 0.12             | 0.18  | 0.15  | 0.19  | 0.14  |
| 8                       | 0.12             | 0.09  | 0.07  | -0.01 | 0.06  |
| 9                       | 0.08             | 0.20  | 0.21  | 0.10  | 0.08  |
| 10                      | 0.23             | 0.22  | 0.22  | 0.20  | 0.31  |
| 11                      | -0.08            | 0.09  | -0.08 | 0.03  | 0.01  |
| 12                      | 0.23             | 0.05  | 0.03  | 0.02  | -0.19 |
| 13                      | 0.15             | 0.13  | 0.13  | 0.17  | 0.26  |
| 14                      | -0.22            | 0.20  | 0.09  | 0.04  | 0.28  |
| 15                      | 0.04             | 0.04  | 0.00  | 0.01  | -0.02 |
| 16                      | 0.00             | 0.06  | 0.13  | 0.12  | -0.17 |
| 17                      | 0.04             | 0.16  | 0.03  | 0.21  | 0.23  |
| 18                      | -0.09            | -0.65 | -0.14 | 0.20  | 0.32  |
| 19                      | 0.27             | 0.48  | 0.32  | 0.30  | 0.50  |
| 20                      | 0.13             | 0.17  | 0.10  | 0.08  | 0.15  |
| 21                      | 0.00             | 0.11  | 0.15  | 0.05  | -0.02 |
| 22                      | 0.03             | 0.05  | -0.11 | 0.09  | 0.03  |

### 4.3. Evaluation of the Research Findings

#### 4.3.1. Crop and Animal Production Hunting and Related Service Activities

The assets of the companies in the sector exhibited a regular upward trend over the years, and this upward trend continued during the pandemic. The equities of the companies increased significantly in the last period before the pandemic, and this upward trend also continued during the pandemic. In the sector, which closed some periods with profit and some periods with loss before the pandemic and whose profitability fluctuated, there was a small amount of net profit during the pandemic. While net sales tended to increase regularly in the sector before the pandemic, they continued to increase during the pandemic. There was no loss of sales in the sector.

Upon analyzing the sector's profitability, it is observed that there was a net loss in some periods and a net profit in other periods before the pandemic, and the net profit margins of the companies exhibited a fluctuating course. Despite the loss in 2019, the sector had a net profit margin of 0.01 during the pandemic. While the sector's return on assets (active), which showed a fluctuating course, was negative in 2019, it turned positive during the pandemic. The return on equity was parallel to the return on assets, and the return on equity increased during the pandemic in comparison with 2019.

As a result, it was observed that the sector, whose assets, equity, net sales, and net profit increased during the pandemic, was positively affected by the pandemic.

### **4.3.2. Mining of Coal and Lignite**

The assets of the companies in the sector exhibited a regular upward trend over the years, and this upward trend continued during the pandemic. The equities of the companies increased regularly, and the upward trend also continued during the pandemic. When the net profit figures before the pandemic were examined, it was observed that the profits increased regularly since the base year, but this increase occurred at a lower rate during the pandemic period compared to the previous period. The net sales volume increased during the periods, including the pandemic period starting from the base year. The sector did not experience a loss of sales during the pandemic.

Upon examining the profitability analysis of the sector, it is observed that the net profit margin peaked in 2017 and has exhibited a downward trend since this year. Despite increasing net sales during the pandemic, the net profit margin decreased. It is revealed that the return on assets has exhibited a downward trend since 2017, and the return on assets has decreased during the pandemic. It was determined that while the return on equity was 0.13 in 2016, it increased to 0.31 in 2017 and showed a downward trend since this year and decreased to 0.23 during the pandemic.

As a result, it was observed that the net profit margin, return on assets, and return on equity of the sector, whose assets, equity, net profit and net sales increased during the pandemic, decreased slightly. It may be possible to explain the reason for this decrease as the reduction of the profit margin to maintain or increase the sales volume.

### **4.3.3. Food, Beverage and Tobacco**

The assets of the companies in the sector increased regularly over the years, except for a slight decrease in 2019, and this upward trend continued during the pandemic. The highest increase in assets occurred during the pandemic. The companies' equities also increased regularly, and the upward trend continued during the pandemic. Upon examining the net profit figures before the pandemic, it is observed that the profits have increased regularly since the base year (they reached the highest increase in 2019, and although this increase rate decreased slightly during the pandemic, it still continued to increase). The net sales volume of the sector increased regularly over the years and reached the highest amount during the pandemic. The fact that food is a basic need and the increased demand for food during the closure periods due to the pandemic can explain this situation.

Upon analyzing the sector's profitability, it is observed that the net profit margin has increased regularly, except for the decrease in 2018. During the pandemic, the highest net profit margin was reached. It was observed that the return on assets ratio exhibited a regular increasing course over the years, apart from the decrease in 2018, and maintained the same rate of the previous year during the pandemic. While the return on equity was 0.03 in 2016, it increased to 0.10 and 0.11 before and during the pandemic, respectively. It can be interpreted that the sector has increased the return on equity, independently of the pandemic.

As a result, an increase was observed in all the data of the food sector examined during the pandemic. This can be explained by the fact that food is a basic need and the closure increases the demand for food during pandemic periods.

### **4.3.4. Textile, Wearing Apparel and Leather**

The assets of the companies in the sector increased regularly over the years, and this upward trend continued during the pandemic. The equities of the companies also increased regularly, and this upward trend continued during the pandemic. Upon examining the net profit figures before the pandemic, it was observed that the profit increased regularly over the years, reaching the highest level in 2019, and the net profit amount decreased during the pandemic. The net sales volume did not increase regularly from the base year until the pre-pandemic period and decreased during the pandemic.

Upon analyzing the sector's profitability, it was determined that the net profit margin evolved from 0.01 in the base year to 0.05, 0.04, and 0.05, respectively, and the net profit margin again decreased to 0.04 during the pandemic. While the return on assets ratio was 0.01 in 2016, it reached the level of 0.04 in the last period before the pandemic and decreased to 0.02 during the pandemic. While the return on equity was 0.02 in 2016, it reached the level of 0.11 in the last period before the pandemic and decreased to 0.06 during the pandemic. It can be interpreted that the sector's return on equity has decreased considerably during the pandemic.

As a result, it was observed that the net profit, net sales, net profit margin, return on assets, and return on equity of the sector, whose assets and equities increased during the pandemic, decreased.

### **4.3.5. Wood Products Including Furniture**

The assets of the companies in the sector increased regularly over the years, and this upward trend continued during the pandemic. Following the increase in the equity of the companies in 2017 compared to the base year, there was a decrease in the following periods, and a significant increase was observed again during the pandemic.



Upon examining the net profit figures before the pandemic, it was observed that the sector closed all periods with losses except for 2017, and significant profits were made during the pandemic. It was revealed that there was a regular increase in the net sales volume since the base year before the pandemic, and this increase reached very high levels during the pandemic.

When the profitability of the sector was analyzed, it was revealed that the net profit margin was mostly negative before 2019 but turned positive in 2019 and 2020, the pandemic period. However, despite the increase in net sales and profit in 2020, it was found that the net profit margin decreased compared to the previous year. This situation may be the result of the high cost of sales or competition in the sector. Upon examining the return on assets and the return on equity, it was observed that both ratios were negative before the pandemic, in parallel with the previous findings, and turned positive during the pandemic.

Consequently, an increase was observed in all the data of the wood products including furniture sector, during the pandemic period, except for a slight decrease in the net profit margin. The reasons for the increase in the furniture sector can be explained by the fact that individuals lived in their households due to the closure in this period, gave priority to different needs, and turned to products such as household goods in their consumption preferences.

#### **4.3.6. Paper and Paper Products, Printing and Publishing**

The assets of the companies in the sector increased regularly over the years, except for 2019, when a slight decrease was observed, and this increase also continued during the pandemic. In general, an increase was observed in the companies' equity over the years. When the net profit figures are examined before the pandemic, it is observed that the sector made a loss in all periods except 2018, and it closed the pandemic period with profit, although it could not catch up with the large profit amount in 2018. The net sales volume increased regularly, except for 2019, when a slight decrease was observed, and this upward trend continued during the pandemic.

Upon analyzing the sector's profitability, it was found that the net profit margin was negative, in parallel with the previous data, except for 2018, and it turned positive again during the pandemic. In parallel with the previous findings, it was revealed that the return on assets and equity ratios were negative, except for 2018, and turned positive again during the pandemic.

As a result, an increase was observed in all the data of the paper and paper products, printing and publishing sector during the pandemic. It can be interpreted that the sector has been positively affected by the pandemic. Undoubtedly, the consumption preferences of individuals as a result of their changing lifestyles during the pandemic are also effective here.

#### **4.3.7. Chemicals, Petroleum, Rubber and Plastic Products**

The assets of the companies in the sector increased regularly over the years, and this upward trend also continued during the pandemic. The highest increase in assets occurred during the pandemic period. In general, an increase was observed in the companies' equity over the years. The highest increase in equities occurred during the pandemic. Upon examining the net profit figures before the pandemic and during the pandemic, it was determined that there was a regular increase, except for 2018. The net sales volume of the sector increased regularly, except for 2019, when there was a slight decrease, and this upward trend continued during the pandemic.

When the sector's profitability was analyzed, it was observed that the net profit margin was 0.07, 0.09, and 0.06, respectively, until 2019 before the pandemic, while it increased and reached 0.10 in 2019 and the pandemic period. It was found that the sector's profitability was not adversely affected by the pandemic. Return on assets ratios were generally in the range of 0.06 to 0.07, except for 0.09 in 2017. Despite the decrease during the pandemic in comparison with the previous period, it is observed that they were parallel with the ratios in previous periods. When the return on equity is examined, it is observed that the ratios, ranging between 0.12 and 0.19, decreased slightly during the pandemic compared to the previous year. However, it should be noted that despite this decrease, the ratio did not fall far below the sector's ratios in previous years.

Consequently, while there was an increase in the assets, equities, net sales, and net profit of the chemicals, petroleum, rubber and plastic products sector during the pandemic period, the net profit margin remained constant, and there was a slight decrease in the return on assets and equity.

#### **4.3.8. Non-Metallic Mineral Products**

The assets of the companies in the sector increased regularly over the years, and the upward trend continued during the pandemic period. The companies' equity also increased over the years. Upon examining the net profit figures before the pandemic and during the pandemic, it is observed that the profit figure in the base year 2016 decreased regularly in 2017 and 2018, ultimately the sector made a loss in 2019, and a significant amount of profit was made again during the pandemic. The sector's net sales volume increased regularly over periods, mostly during the pandemic.

When the profitability of the sector is analyzed, it is observed that the net profit margin decreased over the years from the highest level of 0.12 in 2016, became negative in 2019 due to the loss, and reached the level of 0.05 again during the pandemic. Return on assets and equity decreased regularly over the years, turned negative in 2019, and turned positive again during the pandemic period.

As a result, it is observed that the sector recovered despite the pandemic after the loss in 2019, and all the data examined turned positive.

#### **4.3.9. Basic Metal**

The assets of the companies in the sector increased regularly over the years, and the upward trend continued during the pandemic period. The companies' equity also increased over the years. When the net profit figures before the pandemic and during the pandemic are examined, a fluctuating course is observed. The profit figures, which increased by bounds from 2016 to 2018, started to decrease in 2019 and decreased by half. During the pandemic, a slight increase in net profit was observed. It was determined that the net sales volume increased regularly over periods, but the rate of increase slowed down in 2019 and increased significantly during the pandemic.

When the sector's profitability is analyzed, it is observed that the net profit margin was in the range of 0.08 to 0.16, and during the pandemic, it remained unchanged at the rate of 0.08 compared to the year before the pandemic. It was found that the sector's profitability was not adversely affected by the pandemic. The sector's return on assets and equity, which showed a fluctuating course over periods, decreased sharply in 2019 compared to the previous year, and this decline continued, albeit slightly, during the pandemic.

Consequently, the upward trend in the sector's data in the previous periods also continued during the pandemic period. It can be said that the sector has not been adversely affected by the pandemic and has managed to maintain its assets, equity, net profit, net sales, and net profit margins.

#### **4.3.10. Fabricated Metal Products, Machinery, Electrical Equipment and Transportation Vehicles**

The assets of the companies in the sector increased regularly over the years and increased by approximately 50 percent compared to the previous period, with the highest increase during the pandemic. While the companies' equity followed a fluctuating upward course, it increased by around 50 percent during the pandemic period compared to the pre-pandemic period. Before the pandemic, net profit figures increased regularly since the base year, and during the pandemic, they increased more than twice the previous period. It was found that the pandemic increased the sector's profit very significantly. The net sales volume of the sector increased regularly compared to the base year, and the increase continued during the pandemic.

Upon analyzing the sector's profitability, it is observed that the net profit margin was 0.06 in the base year, 0.05 in the periods until the pandemic, and increased to 0.09 during the pandemic. During the pandemic period, the net profit margin increased considerably. It is revealed that the return on assets ratio was 0.07 in 2016, 0.06 in the following periods until the pandemic, and increased to 0.09 during the pandemic. It is observed that the return on equity was high and in the 0.20-0.23 band in the pre-pandemic periods, but there was a significant jump in this ratio, as in other ratios during the pandemic, and it reached 0.31.

Consequently, an increase was observed in all the data examined in the sector during the pandemic. The changing consumption preferences of individuals due to the closure during the pandemic and the resulting increase in demand for sector products can be indicated as the reasons for this situation.

#### **4.3.11. Electricity, Gas and Steam**

The assets and equities of the companies in the sector increased regularly over the years, with the highest increase in 2017, and the increase also continued during the pandemic. Net profit figures before and during the pandemic period showed a fluctuating course. Accordingly, the sector, which made a loss in 2016 and 2018, moved into profit in 2019 before the pandemic, and although it did not make any losses during the pandemic, a decrease of approximately 50 percent was observed in its profits. It was revealed that the net sales volume increased regularly, with the highest increase in 2017 and 2018, although the rate of increase decreased in the following periods, including the pandemic period.

When the sector's profitability is analyzed, it is observed that the net profit margin was negative in 2016 and 2018, positive in other years, but exhibited a downward trend during the pandemic period compared to the previous period. Return on assets and return on equity were negative in 2016 and 2018, positive in other years, but tended to decrease during the pandemic compared to the previous period.

As a result, while assets, equity, and net sales increased in the electricity, gas and steam sector during the pandemic, net profit, net profit margin, return on assets and equity decreased. The sector was partially adversely affected by the pandemic.

#### **4.3.12. Construction and Public Works**

In the sector, the assets of the companies increased regularly over the years, and the increase continued at the same levels during the pandemic. While the companies' equity increased continuously in the periods before the pandemic, the highest increases took place in 2018 and 2019. During the pandemic, equities remained below the levels of 2018 and 2019. In the sector, whose net profit decreased continuously from 2017 to 2019, there was a net loss during the pandemic. In the sector, whose net sales increased from 2016 to 2018, net sales started to decrease as of 2019 and reached the lowest level during the pandemic. In the sector, whose net profit margin decreased continuously before the pandemic due to the decrease in net sales, the net profit margin turned negative due to the loss suffered during the pandemic period.

Regularly increasing assets in the sector, decreasing sales, and decreases in net profit also reduced the profitability of companies' assets over periods and turned the profitability of assets into negative, especially during the pandemic. Despite the upward trend of equities since 2016, the return on equity decreased continuously due to the decrease in sales and net profits and turned negative during the pandemic period.

As a result, in the sector, which regularly increases its assets and tries to protect its equities, net sales started to decrease as of 2019 and reached the lowest level during the pandemic. Despite the decrease in net sales in the sector, it can be said that the increase in assets originates from inventories that could not be produced and sold. Companies had to increase their equity due to the difficulty of finding new foreign resources. The net profit margin decreased due to increased costs and decreases in net sales and turned into a net loss during the pandemic. This reduced the profitability of assets and equity. The stagnation that started in the sector before the pandemic reached its highest level during the pandemic. The pandemic has adversely affected the construction sector.

#### **4.3.13. Wholesale Trade**

The assets of the companies in the sector increased regularly over the years, and a significant increase was observed during the pandemic period compared to 2019. The companies' equity also increased regularly, and the most significant increase occurred during the pandemic. Upon examining the net profit figures before the pandemic, it was observed that profitability increased regularly since the base year, and during the pandemic, it reached almost twice the year 2019. It was determined that the pandemic increased the profits of the wholesale trade sector. The net sales volume increased regularly compared to the base year and reached the highest amount during the pandemic.

Upon analyzing the sector's profitability, it is observed that the net profit margin remained at the same levels in 2016, 2017, and 2018, started to increase in 2019 and reached the highest level during the pandemic. The return on assets fluctuated between 0.03 and 0.05 before the pandemic and reached the highest level with 0.08 during the pandemic. While the return on equity was between 0.13 and 0.17 before the pandemic, it increased to 0.26 during the pandemic.

Consequently, an increase was observed in all the data of the wholesale trade sector examined during the pandemic period. Significant increases, especially in net sales and net profit, demonstrate that the sector has grown under the pandemic conditions and has been positively affected by the pandemic.

#### **4.3.14. Retail Trade**

The assets of the companies in the sector increased regularly, and a significant increase was observed in 2019 and especially during the pandemic period. While equities increased regularly, except for 2019, the most significant increase took place during the pandemic period. The sector, which closed 2016 with a net loss, moved into profit in 2017, there was a significant decrease in its profits in 2018 and 2019, and its net profit increased by approximately 12.5 times during the pandemic compared to the previous period. The net sales volume increased regularly compared to the base year.

When the sector's profitability was analyzed, it was observed that while the net profit margin was negative in 2016, it increased to 0.01 in the following years and reached the highest level during the pandemic. The return on assets ratio exhibited a fluctuating course over periods and reached the highest level during the pandemic. The return on equity was negative in 2016, at a rate of 0.20 in 2017 and decreased in the following years. During the pandemic period, it increased 7 times compared to the previous period and reached 0.28.

As a result, an increase was observed in all the data of the retail trade sector examined during the pandemic period. Significant increases, especially in net sales and net profit observed during the pandemic, indicate that the sector has grown under the pandemic conditions and has been positively affected.

#### **4.3.15. Restaurants and Hotels**

The assets of the companies in the sector increased regularly over the years, and the upward trend continued at the same levels during the pandemic. While the equity increased continuously in the pre-pandemic periods, it remained at approximately the same level with a slight decrease during the pandemic period. The sector, which made a profit in 2016 and 2017, suffered a significant loss in 2018 and achieved a net profit in 2019 by recovering. However, 2020 was closed with a very considerable net loss due to the pandemic. While net sales increased regularly until the pandemic period, they decreased significantly during the pandemic compared to the previous period and were realized as approximately one-third of 2019. Travel restrictions imposed due to the pandemic, long-term closure of hotels and restaurants significantly reduced net sales and profits in the sector.

The sector, which had a significant net profit margin in 2016 and 2017 before the pandemic, had a negative net profit margin in 2018, followed by a recovery in 2019, but the net profit margin turned into a significant negative in 2020 due to the pandemic. The return on assets, which had increased until 2018, started to decrease in 2019 and turned negative during the pandemic. Despite the upward trend of equities from 2016 until 2019, the return on equity, which decreased in 2018 due to the decrease in sales and net profits, increased in 2019 and turned negative during the pandemic.

As a result, the net sales of the sector, whose assets and equity increased, were at the lowest level during the pandemic. Decreases in net sales in the sector originated from the restrictions during the pandemic period. This caused net profits to turn into a net loss, and return on assets and equity to turn negative. The restaurants and hotels sector has become one of the sectors most adversely affected by the pandemic.

#### **4.3.16. Transportation and Storage**

The assets of the companies in the sector increased regularly over the years, and the increase continued at the same levels during the pandemic. Equities increased continuously during the pre-pandemic periods and remained at approximately the same level with a slight decrease during the pandemic. This originated from the loss suffered during the pandemic period. In the sector, which made a loss in 2016, profit was made since 2017, and the profit increased in 2018 and 2019. During the pandemic, a very significant amount of net loss occurred. While net sales in the sector increased regularly until the pandemic period, they decreased by approximately half during the pandemic period compared to the previous period.

The net profit margin, which had been exhibiting an upward trend since the base year before the pandemic period, turned into a significant negative due to the pandemic experienced in 2020.

Regularly increasing assets in the sector, decreasing sales, and decreases in net profits also decreased the profitability of companies' assets over periods and turned them into negative, especially during the pandemic. The return on equity increased until 2018, started to decrease in 2019 and turned negative during the pandemic.

Consequently, the net sales of the sector, which regularly increased its assets and protected its equities, were at the lowest level during the pandemic. Decreases in net sales and net profits in the sector originated from travel restrictions during the pandemic period. This caused net profits to turn into a net loss, and return on assets and equity to turn negative. The transportation and storage sector has also been one of the sectors most adversely affected by the pandemic.

#### **4.3.17. Telecommunication**

The sector's assets increased continuously over the years due to the investments made in the sector. This increase continued during the pandemic. Parallel to the increase in assets, the sector's equities also exhibited an upward trend, including the pandemic period. The net profit, which increased in 2017 in comparison with 2016 decreased in 2018, increased significantly in 2019, and the upward trend continued during the pandemic. It was revealed that the net sales of the telecommunication sector increased in all the years analyzed. The increasing need for communication during the pandemic led to an increase in net sales.

Upon analyzing the sector's profitability, it was observed that the net profit margin exhibited a fluctuating course. The net profit margins, which were 0.03 in 2016, 0.09 in 2017, 0.02 in 2018, and 0.12 in 2019, increased to the highest level (0.13) during the pandemic. Return on assets fluctuated since 2016. By years, it was 0.01 in 2016, 0.05 in 2017, 0.01 in 2018, 0.07 in 2019, and 0.08 during the pandemic. While the return on equity was 0.04 in 2016, it was 0.16 in 2017, 0.03 in 2018, 0.21 in 2019, and 0.23, which was the highest level during the pandemic.

Consequently, all data examined during the pandemic period in the telecommunication sector increased. The increasing need for communication due to the restrictions during the pandemic has ensured that the sector has been positively affected by the pandemic.

#### **4.3.18. Human Health and Social Services**

The sector's assets increased regularly since 2016, and the increase also continued during the pandemic. Despite the decrease in equities in 2017 and 2019, an increase was observed during the pandemic period. In the sector, which made a loss until the end of 2018, there was net profit since 2019, and a net profit increase was achieved during the pandemic. Net sales in the sector tended to increase regularly and reached their highest level during the pandemic. The increase in health expenditures due to the pandemic led to an increase in the net sales of the sector.

The net profit margin, which was negative until the end of 2018, was 0.02 in 2019 and reached the highest level (0.04) during the pandemic. Return on assets was negative until the end of 2018 due to net losses. Return on assets increased in 2019 and afterward. Return on assets, which was 0.02 in 2019, increased to 0.03 during the pandemic. The return on equity, which was negative in 2016, 2017, and 2018, also started to increase since 2019, reaching 0.20 in 2019 and 0.32 in 2020.

As a result, the assets, equity, net sales, net profit, return on assets and equity ratios of the human health and social services sector increased during the pandemic period. The increase in health expenditures for the purpose of protection from the adverse effects of the pandemic and treatment caused the sector to be positively affected by the pandemic in financial terms.

#### **4.3.19. Sports Activities, Amusement and Recreation Activities**

In the sector, consisting of companies from the four big sports clubs in Turkey (Fenerbahçe, Galatasaray, Beşiktaş and Trabzonspor), it was observed that assets increased in all the years analyzed. Despite the pandemic, investments in the sector continued. Although the equities of the companies in the sector improved in 2017, it was found that they were negative in all periods. This originated from the fact that the companies' liabilities were more than their assets. The net loss during the pandemic was approximately 2 times the net loss of 2019 in the sector, which constantly announced a net loss during the analysis periods. The restriction of sports activities in the world and Turkey during the pandemic caused the loss to increase. Upon examining the net sales, it was observed that there was a continuous downward trend in the following years, starting from 2017 when the highest level was reached. The reason for this is the revenues of the companies in the sector within the scope of the copyright agreements and the discounts made by the publisher.

The net profit margins were always negative in the sector, which made a loss during all periods. The improvement observed in 2018 could not continue in the following years and caused the highest negative net profit margin to emerge during the pandemic. The return on assets turns out to be negative due to the increase in assets and the corresponding net loss in every period. Since the increasing asset amounts during the pandemic period were higher than the realized net loss, a very significant increase was not observed in the negative return on assets ratio. Upon examining the return on equity ratios, since the equity of the companies in the sector is negative in every period, the calculated return on equity ratios seem to increase misleadingly. However, it is not possible to say that the return on equity ratios of companies with negative equity and reporting a net loss in each period yield significant results.

As a result, the assets of the companies in the sector increased during all periods, while their equity was observed to be negative in all periods. It should be examined how these companies, which have lost their equity, can continue their activities. Net sales, which tended to decrease continuously, and the net loss realized in each period also continued during the pandemic. It is possible to say that the financially weak sector has been adversely affected by the pandemic. However, the same negative results were also obtained during the pre-pandemic periods. It is not possible to attribute all the financial problems of the sector to the pandemic.

#### **4.3.20. Information Technology**

Assets increased in each period, and new investments were made in the rapidly developing sector. Especially the closure of workplaces and the transition to working from home during the pandemic period increased the demand for information technology services. Companies increased their assets by approximately 50 percent during the pandemic period in comparison with the previous period. During the analysis periods, the equity of the companies also tended to increase continuously. Although the net profit of the sector, exhibiting an upward trend, decreased in 2018 and 2019, it increased by almost 2 times compared to the previous period and reached the highest amount during the pandemic. Net sales increased continuously, especially during the pandemic period, increasing by 67 percent in comparison with the previous period.

Due to the constantly increasing net sales and net profit in the sector, the net profit margin remained at the same levels in every period. The return on assets was realized at approximately the same levels in each period due to the increase in net profits with continuously increasing assets. The return on equity exhibited a fluctuating course over periods but increased to approximately 2 times the rate of the previous period during the pandemic.

Consequently, net sales increased along with assets and equity in the sector. Hence, net profits increased significantly in each period. During the pandemic, changing conditions in business life led to an increase in the demand for information technology services and the growth of the sector. It was observed that the sector was positively affected by the pandemic in financial terms.

#### **4.3.21. Office Administrative, Office Support and Other Business Support Activities**

The asset totals of the sector carrying out service activities exhibited a fluctuating trend in the analyzed period, and this situation did not change during the pandemic. Equities, which tended to increase in previous years, decreased in 2018 but started to increase in 2019 and continued to increase, albeit slightly, during the pandemic. The net profit, which had been decreasing continuously since 2016, turned into a significant loss during the pandemic period. While net sales increased in 2017, they decreased by 70 percent in 2019 compared to 2018 and by 57 percent during the pandemic period in comparison with 2019.

Upon reviewing the net profit margins, it was observed that they decreased since 2016 and turned negative during the pandemic. Return on assets ratios exhibited a fluctuating course, decreased to 0.04 in 2019, and turned negative during the pandemic period. In the sector with low equity amounts, return on equity increased until 2018, decreased significantly in 2019 and turned negative during the pandemic.

Consequently, in the sector, whose net sales and net profits decreased continuously before the pandemic, there was a loss of sales and a net loss during the pandemic. The continuously weakening financial structure of the sector worsened significantly along with the pandemic. Restrictions imposed on workplaces during the pandemic also limited the sector's activities.

#### **4.3.22. Real Estate Activities**

The assets of the sector increased continuously, and a significant increase was observed, especially in 2019. The increase in assets also continued during the pandemic. Equities, as assets, increased continuously, except for 2018, and the upward trend continued during the pandemic period. While the sector made a net profit in 2016 and 2017, it announced a net loss in 2018 and achieved a net profit again in 2019. During the pandemic, the net profit decreased to about half of 2019. While net sales increased continuously since 2016, they increased by 140% during the pandemic period in comparison with 2019.

Despite the increasing net sales of companies during the pandemic, a decrease was determined in their net profits. This caused a decrease in net profit margins. While net profit margins were 0.50 and 0.58 in 2016 and 2017, they turned negative in 2018, increased to 0.45 in 2019, and decreased to 0.11 with a significant decrease during the pandemic. The decrease in the net profit margin despite the increasing sales during the pandemic demonstrates that companies had to make sales with very low profit rates.

While the return on assets ratios, which showed a fluctuating trend, were negative in 2018, they increased in 2019, and during the pandemic period, they were half of 2019. While the return on equity ratios were negative in 2018, they increased in 2019 and reached one-third of 2019 during the pandemic.

As a result, the sector's assets and equity increased continuously. In 2018, when the economic crisis was experienced, a net loss was announced, the sector started to recover from 2019 and moved into profit. However, there was a significant decrease in profits in 2020. Although the sector managed to increase its sales during the pandemic, its net profit margin was realized as a quarter of the previous period. It can be said that sales were made with low profit rates under the pandemic conditions in the sector. This situation was reflected in a similar way in the return on assets and equity ratios. The sector, which started to recover after the economic crisis experienced in 2018, was adversely affected by the pandemic.

## **5. Conclusion**

The purpose of our study is to evaluate the impact of the pandemic on the sectors in Turkey and reveal which sectors and how were affected by the pandemic. In the study, companies were analyzed using the data obtained from the financial statements and income statements for the last five years in the sectors other than the financial sectors registered in BIST, and the following results were obtained on a sectoral basis.

- a) In the sector of crop and animal production hunting and related service activities, assets, equity, net sales, and net profit increased during the pandemic, and the sector was positively affected by the pandemic.
- b) In the sector of the mining of coal and lignite, it was observed that despite the increase in assets, equity, net sales, and net profit during the pandemic, there was some decrease in the net profit margin, the return on assets and the return on equity. The sector was partially adversely affected by the pandemic.

- c) An increase was observed during the pandemic in all the data of the food, beverage and tobacco sector. As a result, the sector was positively affected by the pandemic in financial terms.
- d) In the textile, wearing apparel and leather sector, assets and equity increased during the pandemic, while there was a decrease in the net profit, net sales, net profit margin, return on assets and equity. It can be said that the sector was partially adversely affected by the pandemic.
- e) All the data of the wood products including furniture sector, which were examined during the pandemic, showed an increase, except for a slight decrease in the net profit margin. The sector was positively affected by the pandemic in financial terms.
- f) An increase was observed in all the data of the paper and paper products, printing and publishing sector, examined during the pandemic. The pandemic influenced the sector positively.
- g) While the assets, equities, net sales, and net profits of the chemicals, petroleum, rubber and plastic products sector increased, the net profit margin remained constant, and there was a slight decrease in the return on assets and equity. The industry was partially positively affected by the pandemic.
- h) The sector of non-metallic mineral products recovered despite the pandemic after the loss it suffered in 2019, and all the examined data turned positive, and it was affected positively by the pandemic in financial terms.
- i) The upward trend in the data of the basic metal sector in the previous periods also continued during the pandemic. It can be said that the sector was not adversely affected by the pandemic and managed to maintain its assets, equity, net profit, net sales, and net profit margins.
- j) An increase was observed in all the data of the fabricated metal products, machinery, electrical equipment and transportation vehicles sector, examined during the pandemic. The sector was affected by the pandemic positively in financial terms.
- k) While there was an increase in assets, equity, and net sales in the electricity, gas and steam sector during the pandemic, net profit, net profit margin, return on assets and equity decreased. The sector was partially adversely affected by the pandemic.
- l) The net sales of the construction and public works sector started to decrease as of 2019 and were at the lowest level during the pandemic. During the pandemic, the net profit margin decreased and turned into a net loss. This reduced the profitability of assets and equity. The pandemic caused the sector to be adversely affected.
- m) An increase was observed in all the data of the wholesale trade sector, examined during the pandemic. Especially significant increases in net sales and net profit demonstrate that the sector has grown under pandemic conditions and has been positively affected by the pandemic.
- n) An increase was found in all the data of the retail trade sector examined during the pandemic. Especially significant increases in net sales and net profit observed during the pandemic indicate that the sector has grown under pandemic conditions and has been positively affected by the pandemic.
- o) While the assets and equities of the restaurants and hotels sector showed a regular upward trend, the net sales of the sector were at the lowest level during the pandemic, and a net loss was announced during the pandemic period. The sector was one of the sectors adversely affected by the pandemic.
- p) In the transportation and storage sector, assets increased regularly, and equity was preserved. On the other hand, net sales were at the lowest level during the pandemic. The net profit of the sector for the period turned into a loss during the pandemic, while the return on assets and equity turned negative. The sector was adversely affected by the pandemic.
- q) In the telecommunication sector, assets increased during the pandemic, equity was preserved, net sales and net profit increased. The increased need for communication originating from the restrictions during the pandemic has ensured that the sector was positively affected by the pandemic.
- r) Assets, equity, net sales, and net profit increased during the pandemic in the sector of human health and social services, and return on assets and equity ratios increased. Increases in health expenditures caused the sector to be affected positively by the pandemic in financial terms.
- s) The assets of companies in the sports activities, amusement and recreation activities sector increased in all periods, while equity was negative in all periods. Net sales, which tended to decrease continuously, and the net loss realized during each period also continued during the pandemic. It is possible to mention that the financially weak sector was adversely affected by the pandemic.
- t) The upward trend in assets, equities, net sales, and net profits in the information technology sector also continued during the pandemic. The sector was positively affected by the pandemic in financial terms.

u) The net sales and net profit of the office administrative, office support and other business support activities sector showed a downward trend before the pandemic. During the pandemic, there was a loss of sales and a net loss. The continuously weakening financial structure of the sector significantly worsened with the pandemic. The data of the sector announced since 2016 demonstrate that even if the pandemic had not occurred, sales losses could continue, and profits could decrease.

v) The assets and equities of the real estate activities sector increased continuously. Profits decreased significantly due to the pandemic. Although the sector managed to increase its sales during the pandemic, its net profit margin was realized as a quarter of the previous period. The sector, which started to recover after 2018, was adversely affected by the pandemic.

The results showing in which direction the sectors whose assets, equities, net profits, net sales, net profit margins, returns on assets and equity for the last five years were examined within the scope of the study were affected by the pandemic are given above. Examining more data on sector companies and making sector-based analyses and evaluations will be beneficial in terms of revealing in detail the level of impact of each sector from the pandemic.

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