

Analyzing the Impact of COVID-19 on the Financial Failure Risk in Borsa İstanbul Manufacturing Companies

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ABSTRACT

There is no agreed and precise definition of the concept of financial failure. This situation causes the studies of the concept to be associated with bankruptcies. Although not every company experiencing financial failure goes bankrupt, it can be noted that economic fluctuations that happen on a global scale cause many companies to face the risk of financial failure and even bankruptcy. Furthermore, the COVID-19 pandemic has also affected the economic policies of countries and thus affected the operations of companies. This study aims to analyze the financial failure risk of Borsa İstanbul (BIST) manufacturing companies before and after COVID-19. In the research, financial statements of BIST manufacturing industry companies published quarterly between the years 2019-2020 were used. Within the scope of the research, the quarterly financial statements of 146 BIST companies listed in the manufacturing industry for the years 2019-2020 were analyzed with the financial failure models of Altman (1968), Springate (1978), Taffler (1983) and Zmijewski (1984).

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1. INTRODUCTION

In recent years, the deepening of global trade and currency wars and the increase in protectionist concerns in international trade has adversely affected the economies of many developed and developing countries and businesses operating in these economies. In this context, states and businesses may experience fluctuations in the economic and financial context. While the results of these adverse effects can often be measured within specific methods, they are sometimes insufficient due to excessive uncertainty, which may increase risk. The global impact of the COVID-19 pandemic, which emerged in Wuhan, China, in December 2019 and spread worldwide in a short time, presents much uncertainty and, therefore, risk.

Pandemics have been occurring naturally since ancient times. A highly pathogenic and antigenically exceptional novel type A virus has spread easily to and from humans. Although the virus was not recognized until 1933, historical records describe pandemics dating back to Hippocrates. The first severe pandemic with vital historical records occurred in 1580 and was determined to have destroyed some Spanish cities. Ten pandemic outbreaks have been documented in the last 300 years (Kelley &

Osterholm, 2008). However, it is controversial that the recent COVID-19 pandemic will cause radical changes in the current order. These changes also constitute a source of risk.

From a financial point of view, it is of great importance for businesses to keep their costs and expenses related to production, activities and financing under control, to closely monitor current and potential interest, exchange rate and liquidity risks, and to make their cash flows and profitability sustainable in order to avoid financial failure. It can be said that almost all sectors have been adversely affected by the COVID-19 process. Prominent sectors can be listed as follows: Airlines, hotels, restaurants, hospitality services, retail, especially manufacturers with complex supply chains, exporters heavily dependent on the Asian market first affected by the global pandemic, tourism-related businesses, transportation, cruises, ports, and the shipping sector, due to the decline in demand and commodity prices for oil, gas, mining, and metal industries. The problems companies faced during the COVID-19 period can be listed as follows: Consumer demand has decreased, and it is uncertain when it will increase and return to its former level. Companies' supply chain has been disrupted, and cash and working capital problems have emerged. Suppliers have had difficulty delivering critical components to manufacturers, and the production process has been delayed or stopped. The decline in consumer demand has caused a backlog in the stocks of companies, and it has become more and more challenging to clean their inventories. As a result, companies had difficulties collecting their receivables from their cash-strapped customers on time. There were also delays in supplier payments due to short-term cash flow constraints. Posted checks, which play a critical role in commercial life and are used as a method of financing receivables, caused serious collection problems due to the cash flow problems in this period. In addition, since companies guarantee post-dated checks, financing problems and their legal consequences arise due to the inability to pay post-dated checks (Deloitte, 2020). Therefore, the risk of financial failure increases due to these problems faced by companies during the COVID-19 process.

This study aims to analyze the financial failure risk of companies listed in the Borsa İstanbul (BIST) manufacturing industry in 2019 and 2020 comparatively. The financial data of the companies for the years 2019 and 2020 was analyzed quarterly. Within the scope of the research, the quarterly financial statements of 146 BIST companies listed in the manufacturing industry sector for the years 2019-2020 were evaluated using Altman (1968), Springate (1978), Taffler (1983) and Zmijewski (1984) financial failure models. The study consists of five main parts. In the introduction part of the study, the relationship between the risk of financial failure and the COVID-19 pandemic and the purpose of the study is explained. In the second part, the literature review on financial failure is presented, and in the third part, the scope and method of the study are given. In the fourth part, the analysis findings made according to the financial failure models of BIST manufacturing industry companies are presented. Finally, in the fifth part, the analysis findings are explained by comparing them with the literature and sharing suggestions for future studies.

2. LITERATURE REVIEW

Winakor & Smith (1935), one of the first financial failure modelling studies, examined 183 companies that went bankrupt between 1923 and 1931. Merwin (1942), on the other hand, examined the financial ratios of firms before bankruptcy to their financial failures over the data of a total of 900 firms that went bankrupt and continued their activities in the period 1926-1936. In both studies, net working capital ratio (net working capital/total assets) and current ratio were important variables in estimating financial failure.

Beaver (1966) conducted one of the most widely known studies among univariate financial failure models, including 79 successful and 79 unsuccessful companies listed in the USA between 1954 and 1964. Weibel (1973) studied 36 successful and 79 unsuccessful firms listed in Switzerland during the 1960-1971 period. They identified the most successful variables in estimating financial failure by using the financial data of 36 unsuccessful small-scale firms. Beaver (1966) found that the working capital ratio (working capital/total assets) and current ratio are among the most influential variables in predicting financial failure, while Weibel (1973) found that the current ratio is among the most influential variables in predicting financial failure.

The first multivariate financial failure model experiments were carried out by Tamari (1966) using the financial data for the period 1956-1960 and included 16 firms that filed for bankruptcy and 12 Israeli firms that went bankrupt. As a result of the study, it has been determined that the current ratio of the companies is one of the six variables that affect their financial failures. Among the financial failure models, the most widely known studies are Altman's (1968; 1983; 1993) studies. Among these, Altman's (1968) study has the feature of being the first financial failure study that does not contain personal judgments and is based entirely on statistical methods. In his study, Altman (1968) developed an estimation model based on the main variables affecting financial failure by using the data of 33 successful and 33 unsuccessful publicly traded manufacturing firms listed in the USA with multiple discriminant analyses. At the end of the study, five financial ratios, including the net working capital ratio, were selected among 22 financial ratios for the model called Z score. Altman (1983) developed the Z score model, which is a model that can also be used in non-public companies, and Altman (1993) altered the Z score model, which can be used in both publicly traded companies and companies listed in industries other than manufacturing.

Springate (1978) studied 40 manufacturing companies listed in Canada; Ohlson (1980) used 105 unsuccessful and 2058 successful companies listed in the USA; and Taffler (1982) examined 25 unsuccessful and 45 successful companies trading on the London Stock Exchange. They aimed to determine the financial ratios that affect financial failure by creating a model that could be used to predict financial failure. All three models have determined that the working capital ratio affects financial failure, which is included in the estimation models. In another study to develop a financial failure model, Zmijewski (1984) developed 12 models using data between 1972 and 1978 of 40

successful and 40 unsuccessful manufacturing companies whose shares were traded on the New York Stock Exchange (NYSE). It was determined that the current ratio is one of the determinants of financial failure in all models. Frydman et al. (1985) carried out financial failure modelling by using the data of 58 unsuccessful and 142 successful manufacturing companies listed in the USA during the 1971-1981 period, and 20 ratios including working capital ratio, current ratio and liquid assets ratio (cash stocks/total assets) were used. They determined that the financial ratio affects financial failure. Odom & Sharda (1990) included 64 bankrupt and 65 non-bankrupt companies listed in the USA during the 1975-1982 periods in their study. Tirapat & Nittayagasetwat (1999) studied 55 unsuccessful, and 341 successful companies listed in Thailand in 1997; Jones & Hensher (2004) studied 24 unsuccessful and 62 successful IT and service companies listed in Australia in the period 1999-2003, whilst Salehi & Abedini (2009) used data from 30 successful and 30 unsuccessful companies listed in Iran between 1995-2007. As a result of all four studies, it has been found that the working capital ratio is one of the determinants of financial failure.

Ganesalingam & Kumar (2001) used the data of 42 successful and 29 unsuccessful companies listed in Australia between 1986 and 1998 to make financial failure predictions. As a result of the study, it has been determined that ten financial ratios, including the current ratio, acid-test ratio and cash ratio, can be used in estimating financial failure. In addition, Gruszczynski (2004), in his study on 200 companies listed in Poland between 1995-1997, and Keener (2013) in his study on 1203 retail companies listed in the USA between 2005 and 2013, found that the cash ratio had statistically significant effects on the financial failures of firms.

Chen et al. (2006) analyzed 89 unsuccessful and 940 successful companies listed in China between December 1999 and June 2003, and Ijaz et al. (2013) investigated the financial ratios affecting financial failure by using the financial data of 35 sugar companies in Pakistan between 2009 and 2010. As a result of both studies, it was determined that the current ratio has statistically significant effects on financial failure and can be used in financial failure predictions. Almansour (2015), on the other hand, examined the internal determinants of financial failure by using data from 11 successful and 11 unsuccessful companies listed in Jordan during the 2000-2003 period and found that the working capital ratio and current ratio had statistically significant effects on financial failure.

Tian & Yu (2017) used 29 financial ratios of 108 Japanese and 112 European companies listed in Japan and European countries in the 1998-2012 period. Different financial failure models for Japanese and European companies were developed, and the results of their models were compared to the results of Altman's (1968) Z score model. As a result of the study, it was stated that retained earnings/total assets, leverage ratio and short-term liabilities/sales ratios were chosen for all models created for Japan, and equity/total debt ratio for European countries. In addition, it was noted that their model performed better than the Altman (1968) Z score model.

Fejér-Király et al. (2019) analyzed the determinants of financial failure by using data from 65 unsuccessful and 95 successful companies traded in the Bucharest Stock Exchange. As a result of the

study, it was determined that the variable of net working capital was selected for the model, which was developed to predict financial failure 1 and 2 years before, and it had significant effects on financial failure. Li & Faff (2019) developed a model using the data of 421 unsuccessful and 441 successful companies between 1988 and 2011, and it was noted that the working capital ratio is one of the 11 variables that affect financial failure.

One of the first financial failure modelling studies in Turkey was carried out by Göktan in 1981. Göktan (1981) predicted the financial failures of the companies 1, 2, 3 and 4 years before the failure, based on the data of 25 successful and 14 unsuccessful companies between 1976 and 1980. As a result of the study, nine financial ratios, including the current ratio, were included in the developed model. One of the first studies to make financial failure predictions with multidimensional statistical models in Turkey was carried out by Aktaş in 1993. Aktaş (1993) developed a financial failure prediction model based on data from 25 successful and 35 unsuccessful companies between 1980 and 1989. As a result of the study, it was determined that the current ratio, acid-test ratio and liquid assets ratio, and working capital management were among the determinants of financial failure. Ünsal (2001) examined the financial ratios that can predict financial failure using data from 16 unsuccessful and 55 successful companies and stated that cash ratio, acid-test ratio and current ratio are among the variables that are determinants of financial failure. Aktaş et al. (2003) developed a financial failure prediction model using the data from 53 successful and 53 unsuccessful industrial, commercial and service companies between 1983 and 1997. As a result of the study, five financial ratios, including the acid-test ratio, were determined. It has also been determined that some influential variables can be used to predict financial failure. In the study of İçerli & Akkaya (2006), 40 unsuccessful and 40 successful companies operating in the 1990-2003 period were examined with financial ratios and the Z test. The cash, acid-test, and current ratios were significant predictors of financial failure. Terzi (2011), on the other hand, aimed to develop a model to predict the financial failure risks of companies based on the data of 10 unsuccessful and 12 successful companies between 2009 and 2010. As a result of the study, six among nineteen financial ratios, including the net working capital ratio, were determined to predict failure effectively. Zeytinoğlu & Akarim (2013) developed a year-specific financial failure model for 2009, 2010 and 2011 with 115 companies. They found that the current ratio was dominant only in the 2009 model, and the net working capital ratio was the main factor of financial failure in all three models.

Ural et al. (2015) analyzed the financial failure risks of companies for one, two and three years before the failure, using the data of 24 food, beverage and tobacco companies in the 2005-2012 period. They used five financial ratios without any working capital variables for one year before failure, seven financial ratios including current ratio and acid-test ratio for two years before financial failure, and eight financial ratios including cash ratio and inventory ratio for three years before financial failure. They determined the current ratio as the significant variable of the financial failure prediction models. Toraman & Karaca (2016) used the data of 17 chemical companies between 2010 and 2013 and

examined the effects of various financial ratios with the Altman (1968) Z score values. They found that the working capital ratio has a significant effect on the Z-score values of the companies. Akyüz et al. (2017) examined sixteen paper and paper products companies operating in 2015. Ertan & Ersan (2018) investigated financial failure using ratios of 175 successful and 33 unsuccessful manufacturing companies between 2000 and 2004. Karadeniz & Öcek (2019) examined the financial ratios affecting financial failure by using the financial data of 12 tourism companies operating in the period between 2012 and 2017. As a result of all three studies, it has been determined that cash ratio, acid-test ratio, and current ratio had statistically significant effects on financial failure and can be used in financial failure predictions. Karaca and Özen (2017) investigated financial failures in the tourism sector companies in Borsa İstanbul using the Altman model.

Arslantürk Çöllü et al. (2020) determined the financial ratios affecting financial failure by using 2016-2018 data of textile, clothing and leather companies whose shares are listed in the BIST. They found that the current ratio, trade receivables ratio and inventory turnover are among the financial ratios that affect financial failure. In the study by Temelli & Tekin (2020), 241 companies in Borsa İstanbul between 2011 and 2019 were analyzed with the Springate model. It was found that 77.6% of the companies were financially successful in the analyzed period.

3. SCOPE, DATA AND METHODOLOGY

Manufacturing industry companies listed on BIST between 2019 and 2020 are within the scope of this research. Data and information of BIST manufacturing industry companies were obtained from the Public Disclosure Platform (KAP). As of July 2021, there are 180 companies operating in the BIST manufacturing industry (KAP, 2021). The 146 manufacturing industry companies analyzed in this study are given in Table 1.

Table 1: BIST Manufacturing Companies Analyzed Within the Scope of the Research

No.	Company	Code
1	Acıselsan Acıpayam Selüloz Sanayi Tic. A.Ş.	ACSEL
2	Adel Kalemçilik Tic.ve San. A.Ş.	ADEL
3	Afyon Çimento Sanayi T.A.Ş.	AFYON
4	Akçansa Çimento Sanayi ve Tic. A.Ş.	AKCNS
5	Akın Tekstil A.Ş.	ATEKS
6	Aksa Akrilik Kimya Sanayi A.Ş.	AKSA
7	Alarko Carrier Sanayi ve Tic. A.Ş.	ALCAR
8	Alcatel Lucent Teletaş Telekomünikasyon A.Ş.	ALKA
9	Alkim Kağıt Sanayi ve Tic.A.Ş.	ALKİM
10	Anadolu Efes Biracılık ve Malt Sanayii A.Ş.	AEFES
11	Arçelik A.Ş.	ARCLK
12	Arsan Tekstil Ticaret ve Sanayi A.Ş.	ARSAN
13	Anadolu Isuzu Otomotiv Sanayi ve Ticaret A.Ş.	ASUZU
14	A.V.O.D.Kurutulmuş Gıda ve Tarım Ürünleri San. Tic. A.Ş.	AVOD
15	Aygaz A.Ş.	AYGAZ
16	Bağfaş Bandırma Gübre Fabrikaları A.Ş.	BAGFS
17	Bak Ambalaj San.ve Tic. A.Ş.	BAKAB
18	Banvit Bandırma Vitaminli Yem San. A.Ş.	BANVT
19	Berkosan Yalıtım ve Tecrit Mad. Üretim ve Tic. A.Ş.	BRKSN
20	Bilici Yatırım Sanayi ve Tic. A.Ş.	BLCYT
21	Bantaş Bandırma Ambalaj San. Tic. A.Ş.	BNTAS
22	Batı Söke Söke Çimento San. T.A.Ş.	BSÖKE
23	Batçım Batı Anadolu Çimento San. A.Ş.	BTCİM
24	Birko Birleşik Koyunlular Mensucat Tic.ve San. A.Ş.	BRKO
25	Birlik Mensucat Tic.ve San. İşletmesi A.Ş.	BRMEN
26	Borusan Mannesmann Boru San.ve Tic. A.Ş.	BRSAN
27	Bossa Tic. Ve San İşletmeleri T.A.Ş.	BOSSA
28	Bosch Fren Sistemleri San.ve Tic. A.Ş.	BFREN
29	Brisa Bridgestone Sabancı Lastik San.ve Tic. A.Ş.	BRISA
30	Burçelik Bursa Çelik Döküm Sanayi A.Ş.	BURCE
31	Burçelik Vana San.ve Tic. A.Ş.	BURVA

32	Bursa Çimento Fabrikası A.Ş.	BUCİM
33	Coca-Cola İçecek A.Ş.	CCOLA
34	Çelik Halat ve Tel San. A.Ş.	CELHA
35	Çemaş Döküm Sanayi A.Ş.	CEMAS
36	Çemtaş Çelik Makine Sanayi ve Tic. A.Ş.	CEMTS
37	Çimbeton Hazır beton ve Prefabrik Yapı Elemanları San. Ve Tic. A.Ş.	CMBTN
38	Çimentaş İzmir Çimento Fabrikası T.A.Ş.	CMENT
39	Çimsa Çimento Sanayi Tic. A.Ş.	CIMSA
40	Çuhadaroğlu Metal San. Ve Paz. A.Ş.	CUSAN
41	Dağı Giyim Sanayi ve Tic. A.Ş.	DAGI
42	Dardanel Önemtaş Gıda Sanayi A.Ş.	DARDL
43	Demisaş Döküm Emaye Mamulleri San. A.Ş.	DMSAS
44	Derimod Konf. Ayakkabı Deri San ve Tic. A.Ş.	DERİM
45	Desa Deri San.ve Tic. A.Ş.	DESA
46	Deva Holding A.Ş.	DEVA
47	Diriteks Diriliş Tekstil San.ve Tic. A.Ş.	DIRIT
48	Ditas Doğan Yedek Parça İmalat ve Teknik A.Ş.	DITAS
49	Doğan Burda Dergi Yayıncılık ve Paz. A.Ş.	DOBUR
50	Doğtaş Kelebek Mobilya San ve Tic. A.Ş.	DGKLB
51	Doğuşan Boru san ve Tic. A.Ş.	DOGUB
52	Döktaş Dökümcülük Tc.ve San. A.Ş.	DOKTA
53	Duran Doğan Basın ve Ambalaj San. A.Ş.	DURDO
54	DYO Boya Fabrikaları San.ve Tic. A.Ş.	DYOBY
55	Ege Endüstri ve Tic. A.Ş.	EGEEN
56	Ege Gübre Sanayi A.Ş.	EGGUB
57	Ege Profil Ticaret ve San. A.Ş.	EGPRO
58	Ege Seramik San.ve Tic. A.Ş.	EGESER
59	Ege Plast Ege Plastik Tic.ve San A.Ş.	EPLAS
60	Ekiz Kimya San.ve Tic. A.Ş.	EKİZ
61	Emek Elektrik End. A.Ş.	EMKEL
62	Eminiş Ambalaj San.ve Tic. A.Ş.	EMNIS
63	Erbosan Erciyes Boru Sanayii Tic. A.Ş.	ERBOS
64	Ereğli Demir Çelik Fabrikaları T.A.Ş.	EREGL
65	Ersu Meyve ve Gıda San. A.Ş.	ERSU
66	Federal -Mogul Izmit Piston ve Pim Üretim Tesisleri A.Ş.	FMZIP
67	Ford Otomotiv San. A.Ş.	PROTO
68	Formet Çelik Kapı San. Ve Tic. A.Ş.	FORMT
69	Frigo-Pak Gıda Maddeleri San. ve Tic. A.Ş.	FRIGO
70	Gediz Ambalaj San.ve Tic. A.Ş.	GEDZA
71	Gentaş Dekoratif Yüzeyler San.ve Tic. A.Ş.	GENTS
72	Gersan Elektrik Tic. Ve San. A.Ş.	GEREL
73	Goodyear Lastikleri T.A.Ş.	GOODY
74	Göлтаş Göller Bölgesi Çimento Sanayi Tic. A.Ş.	GOLTS
75	Gübre Fabrikaları T.A.Ş.	GUBRF
76	Hateks Hatay Tekstil İşletmeleri A.Ş.	HATEK
77	Hektaş Tic. T.A.Ş.	HEKTS
78	Hürriyet Gazetecilik ve Matbaacılık A.Ş.	HURGZ
79	İhlas Ev Aletleri İmalat Sanayi ve Tic. A.Ş.	IHEVA
80	İhlas Gazetecilik A.Ş.	IHGZT
81	İskenderun Demir Çelik A.Ş.	ISDMR
82	İzmir Demir Çelik San. A.Ş.	IZDMC
83	Jantsa Jant Sanayi ve Tic. A.Ş.	JANTS
84	Kaplamin Ambalaj Sanayi ve Tic. A.Ş.	KAPLM
85	Kardemir Karabük Demir Çelik Sanayi Tic. A.Ş.	KARDMD
86	Karsan Otomotiv Sanayii ve Tic. A.Ş.	KARSN
87	Karsu Tekstil Sanayii ve Tic. A.Ş.	KRTEK
88	Kartonsan Karton San. Ve Tic. A.Ş.	KARTN
89	Katmerciler Araç Üstü Ekipman San. Ve Tic. A.Ş.	KATMR
90	Kent Gıda Maddeleri San. Ve Tic. A.Ş.	KENT
91	Kereviş Gıda San. Ve Tic.A.Ş.	KERVY
92	Klimasan Klima San. Ve Tic.A.Ş.	KLMSN
93	Konfrut Gıda San. Ve Tic.A.Ş.	KONFRT
94	Konya Çimento Sanayii A.Ş.	KONYA
95	Kordsa Teknik Tekstil A.Ş.	KORDS
96	Kristal Kola ve Meşrubat Sanayi Ticaret A.Ş.	KRSTL
97	Kütahya Porselen Sanayi A.Ş.	KUTPO
98	Lüks Kadife Ticaret ve Sanayii A.Ş.	LUKSK
99	Makina Takım Endüstrisi A.Ş.	MAKTK
100	Marshall Boya ve Vernik Sanayi A.Ş.	MRSHL
101	Menderes Tekstil Sanayi ve Ticaret A.Ş.	MNDRS
102	Mondi Olmuksan Kağıt ve Ambalaj Sanayi A.Ş.	OLMK
103	Mondi Tire Kutsan Kağıt ve Ambalaj Sanayi A.Ş.	TIRE
104	Niğbaş Niğde Beton Sanayi ve Ticaret A.Ş.	NİBAS
105	Nuh Çimento Sanayi A.Ş.	NUHCM
106	Otokar Otomotiv ve Savunma Sanayi A.Ş.	OTKAR
107	Oylum Sınai Yatırımlar A.Ş.	OYLUM
108	Özbal Çelik Boru Sanayi Tic. Ve Taahhüt A.Ş.	OZBAL
109	Parsan Makine Parçaları Sanayii A.Ş.	PARSN
110	Penguen Gıda Sanayi A.Ş.	PENGD
111	Petkim Petrokimya Holding A.Ş.	PETKM
112	Pınar Entegre Et ve Un Sanayii A.Ş.	PETUN
113	Pınar Su ve İçecek Sanayi ve Ticaret A.Ş.	PINSU
114	Pınar Süt Mamulleri Sanayii A.Ş.	PNSÜT
115	Prizma Pres Matbaacılık Yayıncılık Sanayi ve Tic. A.Ş.	PRZMA
116	Royal Halı İplik Tekstil Mobilya Sanayi ve Tic. A.Ş.	ROYAL
117	RTA Laboratuvarları Biyolojik Ürünler İlaç ve Makine San. Tic. A.Ş.	RTLAB
118	Sanifoam Sünger Sanayi ve Ticaret A.Ş.	SANFM
119	Saray Matbaacılık Kağıtçılık Kırtasiyecilik Tic. Ve San. A.Ş.	SAMAT
120	Sarkuysan Elektrolitik Bakır Sanayi ve Tic.A.Ş.	SARKY
121	Say Yenilenebilir Enerji Ekipmanları Sanayi ve Tic. A.Ş.	SAYAS
122	Sasa Polyester Sanayi A.Ş.	SASA
123	Sekuro Plastik Ambalaj Sanayi A.Ş.	SEKUR
124	Seçuk Gıda Endüstri İhracat ve İthalat A.Ş.	SELGD
125	Silverline Endüstri ve Ticaret A.Ş.	SILVR

126	Söktaş Tekstil Sanayi ve Tic.A.Ş.	SKTAS
127	Sönmez Pamuklu Sanayii A.Ş.	SNPAM
128	Tat Gıda Sanayi A.Ş.	TATGD
129	Temapol Polimer Plastik ve İnşaat Sanayi Ticaret A.Ş.	TMPOL
130	Tofaş Türk Otomobil Fabrikası A.Ş.	TOASO
131	Tuççelik Alüminyum ve Metal Mamulleri Sanayi ve Tic.A.Ş.	TUCLK
132	Tuğuş Gıda Sanayi ve Tic.A.Ş.	TUKAS
133	Tümosan Motor ve Traktör Sanayi A.Ş.	TMSN
134	Tüpraş-Türkiye Petrol Rafinerileri A.Ş.	TUPRS
135	Türk Prysmian Kablo Sistemleri A.Ş.	PRKAB
136	Türk Traktör ve Ziraat Makineleri A.Ş.	TTRAK
137	Türk Tuborg Bira ve Malt Sanayii A.Ş.	TBORG
138	Ulusoy Elektrik İmalat Taahhüt ve Tic.A.Ş.	ULUSE
139	Ulusoy Un Sanayi ve Ticaret A.Ş.	ULUUN
140	Uşak Seramik Sanayi A.Ş.	USAK
141	Ülker Bisküvi Sanayi A.Ş.	ULKER
142	Vestel Beyaz Eşya Sanayi ve Tic. A.Ş.	VESBE
143	Vestel Elektronik Sanayi ve Ticaret A.Ş.	VESTL
144	Viking Kağıt ve Selüloz A.Ş.	VKING
145	Yataş Yatak ve Yorgan Sanayi ve Ticaret A.Ş.	YATAS
146	Yünsa Yünlü Sanayi ve Ticaret A.Ş.	YUNSA

Source: Authors' Compilation

While Mondi Olmuksan Kağıt ve Ambalaj Sanayi A.Ş was traded on the BIST with the OLMIP code, it started to be traded with the OLMK code on 01.07.2021 due to the company name change and was included in the analysis with the same code. Of the 34 manufacturing industry companies not included in the research, 11 were offered to the public (IPOs) in 2021, 3 in 2020 and 1 in 2019 and started to be traded on the BIST. They were not included in the analysis due to the lack of financial statements for the periods studied. Merko Gıda Sanayi ve Tic. A.Ş. (MERKO) was excluded from the analysis. Oyak Çimento (OYAKC) was excluded from the scope of the analysis since Oyak Cement group companies were merged under Mardin Çimento in 2019, and the name of Mardin Çimento was changed to Oyak Çimento since it does not have financial statements for the relevant year. Seventeen manufacturing companies that publish their financial reports every six months are also excluded from the analysis. The companies not included in the study are given in Table 2.

The research used financial statement data of BIST manufacturing companies published in quarterly periods between 2019 and 2020. The companies' financial statement data within the research scope for the relevant periods were taken from the KAP and Fintables databases. In addition, the closing prices of stocks are taken from investing.com.

Within the scope of the research, the quarterly financial statements of 146 BIST companies operating in the manufacturing industry sector for the years 2019-2020 were evaluated using Altman (1968), Springate (1978), Taffler (1983) and Zmijewski (1984) financial failure models. The financial failure models and calculations used in the study are given in Table 3.

Table 2: BIST Manufacturing Companies Excluded from the Scope of the Research

No.	Company	Code
IPOs in 2021		
1	BMS Çelik Hasır Sanayi ve Ticaret A.Ş.	BMS
2	Kalekim Kimyevi Maddeler San. ve Tic.A.Ş.	KALKIM
3	Işık Plastik Sanayi ve Dış Ticaret Pazarlama A.Ş.	ISKPL
4	Kervan Gıda Sanayi ve Ticaret A.Ş.	KRVGD
5	Kütahya Şeker Fabrikası A.Ş.	KTSKR
6	Meditera Tıbbi Malzeme Sanayi ve Ticaret A.Ş.	MEDTR
7	Mercan Kimya Sanayi ve Ticaret A.Ş.	MERCN
8	Qua Granite Hayal Yapı ve Ürünleri Sanayi Ticaret A.Ş.	QUAGR
9	Selva Gıda Sanayi A.Ş.	SELVA
10	Türk İlaç ve Serum Sanayi A.Ş.	TRILC
11	Boğaziçi Beton Sanayi Tic.A.Ş.	BOBET
IPOs in 2020		
1	Fade Gıda Yatırım ve Sanayi Ticaret A.Ş.	FADE
2	Bayrak EBT Taban Sanayi ve Ticaret A.Ş.	BAYRK
3	Dinamik Isı Makine Yalıtım Malzemeleri Sanayi ve Ticaret A.Ş.	DNISI

IPOs in 2019		
1	Yükselen Çelik A.Ş.	YKSLN
Companies that publish Financial Reports on a 6-monthly basis		
1	Ayes Çelik Hısır ve Çit Sanayi A.Ş.	AYES
2	Balatacılar Balatacılık Sanayi ve Ticaret A.Ş.	BALAT
3	Baştas Başkent Çimento Sanayi ve Ticaret A.Ş.	BASCM
4	İzmir Fırça Sanayi ve Ticaret A.Ş.	IZFAS
5	Mega Polietilen Köpük Sanayi ve Ticaret A.Ş.	MEGAP
6	Orma Orman Mahsulleri İntegre Sanayi ve Ticaret A.Ş.	ORMA
7	Özerden Plastik ve Sanayi Ticaret A.Ş.	OZRDN
8	Rodrigo Tekstil ve Sanayi Ticaret A.Ş.	RODRG
9	Politeknik Metal Sanayi ve Ticaret A.Ş.	POLTEK
10	Sodaş Sodyum Sanayii A.Ş.	SODSN
11	Taze Kuru Gıda Sanayi ve Ticaret A.Ş.	TKURU
12	Sumas Suni Tahta ve Mobilya Sanayi A.Ş.	SUMAS
13	Vanet Gıda Sanayi İç ve Dış Ticaret A.Ş.	VANGD
14	Yibitaş Yozgat İşçi Birliği İnşaat Malzemeleri Ticaret ve San. A.Ş.	YIBITAŞ
15	Yonga Mobilya Sanayi ve Ticaret A.Ş.	YONGA
16	Safkar Ege Soğutmacılık Klima Soğuk Hva Tes. İhracat İthalat San. A.Ş.	SAFKAR
17	Seyitler Kimya Sanayi A.Ş.	SEYKM

Source: Authors' Compilation

Table 3: Financial Failure Models in the Research

Financial Failure Model	Formula	Result
Altman (1968)	$\text{Altman } Z = 0.012 \cdot X_1 + 0.014 \cdot X_2 + 0.033 \cdot X_3 + 0.006 \cdot X_4 + 0.999 \cdot X_5$ <p> $X_1 = \text{Working Capital} / \text{Total Assets}$ $X_2 = \text{Retained Earnings} / \text{Total Assets}$ $X_3 = \text{Net Profit Before Interest and Taxes (NPBIT)} / \text{Total Assets}$ $X_4 = \text{Market Value} / \text{Total Liabilities}$ $X_5 = \text{Sales} / \text{Total Assets}$ </p>	<p>$Z < 1,81$ then the company is classified as “not at risk of financial failure”</p> <p>$1,81 \leq Z \leq 2,99$ then the company is classified as “uncertain”</p> <p>$Z > 2,99$ then the company is classified as “not at risk of financial failure”</p>
Springate (1978)	$\text{Springate}_z = 1.03 \cdot X_1 + 3.07 \cdot X_2 + 0.66 \cdot X_3 + 0.4 \cdot X_4$ <p> $X_1 = \text{Working Capital} / \text{Total Assets}$ $X_2 = \text{Net Profit Before Interest and Taxes (NPBIT)} / \text{Total Assets}$ $X_3 = \text{Net Profit Before Taxes (NPAT)} / \text{Current Liabilities}$ $X_4 = \text{Sales} / \text{Total Assets}$ </p>	<p>$Z < 0.862$; then the company is classified as “at risk of financial failure”</p> <p>$Z > 0.862$; then the company is classified as “not at risk of financial failure”</p>
Taffler (1983)	$\text{Taffler}_z = 3.20 + 12.18 \cdot X_1 + 2.50 \cdot X_2 - 10.68 \cdot X_3 + 0.03 \cdot X_4$ <p> $X_1 = \text{Net Profit Before Taxes (NPAT)} / \text{Average Short Term Liabilities}$ $X_2 = \text{Current Assets} / \text{Total Liabilities}$ $X_3 = \text{Short Term Liabilities} / \text{Total Assets}$ $X_4 = (\text{Current Assets} - \text{Stoklar} - \text{Short Term Liabilities}) / (\text{Sales} - \text{Net Profit Before Taxes} + \text{Amortization})$ </p>	<p>$Z < 0,3$ then the company is classified as “at risk of financial failure”,</p> <p>$Z > 0,3$ then the company is classified as “not at risk of financial failure”</p>
Zmijewski (1984)	$\text{Zmijewski} = -4.336 - 4.513 \cdot X_1 + 5.769 \cdot X_2 + 0.004 \cdot X_3$ <p> $X_1 = \text{Net Income} / \text{Total Assets} = \text{ROA}$ $X_2 = \text{Total Liabilities} / \text{Total Assets} = \text{Leverage}$ $X_3 = \text{Current Assets} / \text{Current Liabilities} = \text{Current Ratio} = \text{Liquidity}$ </p>	<p>$Z > 0$ then the company is classified as “at risk of financial failure”,</p> <p>$Z < 0$ then the company is classified as “not at risk of financial failure”</p>

Source: Authors' Compilation

Abbreviations are used in the tables while giving the financial status of the companies. RoFF (Risk of Financial Failure) was used for companies with a risk of financial failure, NRoFF (No Risk of Financial Failure) for companies with no risk of financial failure, and UN (Uncertain) for companies with an uncertain risk of financial failure.

4. FINDINGS

The Altman Z values of the BIST manufacturing companies within the scope of the research, calculated between 2019 and 2020, are given in Table 4.

Table 4: Altman Z Values of Manufacturing Companies for 2019-2020

No.	Code	Altman Z							
		2019/3	2020/3	2019/6	2020/6	2019/9	2020/9	2019/12	2020/12
1	ACSEL	4,83	5,52	4,50	9,03	5,63	20,10	6,46	13,08
2	ADEL	1,40	1,02	1,03	1,07	1,09	1,15	1,72	1,49
3	AFYON	0,13	-0,07	0,09	4,15	0,18	5,48	0,15	5,89
4	AKCNS	0,92	0,96	1,00	1,75	1,16	1,92	1,61	2,04
5	ATEKS	1,25	1,13	1,28	1,41	1,27	1,88	1,46	2,76
6	AKSA	0,84	1,01	0,74	0,83	0,74	1,14	0,75	1,71
7	ALCAR	3,42	2,90	2,78	3,55	3,37	5,08	3,96	10,51
8	ALKA	1,64	3,01	2,48	6,46	2,39	6,48	3,49	6,30
9	ALKİM	1,90	2,54	2,03	6,71	1,95	6,30	2,25	7,28
10	AEFES	0,52	0,56	0,66	0,69	0,74	0,72	0,67	0,67
11	ARCLK	1,06	1,01	1,09	1,12	1,10	1,09	1,09	1,15
12	ARSAN	0,84	1,25	0,96	1,35	1,04	1,84	0,93	2,17
13	ASUZU	0,50	0,61	0,45	0,82	0,50	0,83	1,00	1,16
14	AVOD	1,08	0,99	1,13	1,43	0,97	2,06	0,81	2,37
15	AYGAZ	1,46	1,53	1,68	1,70	1,80	1,74	1,94	1,96
16	BAGFS	0,65	0,76	0,57	0,78	0,75	0,78	0,71	0,87
17	BAKAB	1,19	1,42	1,15	1,44	1,26	1,75	1,39	2,21
18	BANVT	1,58	1,68	2,21	2,02	1,97	1,96	2,01	2,67
19	BRKSN	0,86	0,94	0,74	1,35	0,84	2,06	1,06	2,64
20	BLCYT	1,09	3,49	1,13	3,30	1,63	6,27	2,66	6,39
21	BNTAS	2,99	5,08	2,81	6,00	3,30	5,86	4,73	6,21
22	BSOKE	0,12	-0,20	0,01	-0,11	0,06	-0,11	0,01	-0,09
23	BTCİM	0,30	0,12	0,23	0,15	0,24	0,18	0,26	0,15
24	BRKO	-0,98	-1,14	-0,89	-1,17	-1,04	-0,06	-1,11	0,30
25	BRMEN	-1,13	-3,86	-1,19	0,50	-1,22	-1,86	-1,10	-9,77
26	BRSAN	0,52	0,39	0,55	0,40	0,50	0,44	0,51	0,77
27	BOSSA	0,71	0,95	0,81	0,97	0,81	1,35	1,10	1,70
28	BFREN	7,84	9,51	7,13	10,39	9,64	27,45	11,54	27,83
29	BRİSA	0,64	0,52	0,61	0,68	0,69	0,84	0,66	1,38
30	BURCE	0,15	0,23	0,14	0,41	0,22	1,55	0,43	1,29
31	BURVA	0,89	4,14	0,92	4,78	2,27	11,30	4,20	16,52
32	BUCİM	1,73	1,92	1,76	1,89	1,71	2,13	1,81	3,21
33	CCOLA	0,98	1,08	1,08	1,29	1,21	1,40	1,10	1,48
34	CELHA	0,49	0,38	0,57	0,24	0,44	0,54	0,32	0,75
35	CEMAS	0,75	2,16	0,72	4,49	0,87	4,50	0,38	3,98
36	CEMTS	4,54	5,37	5,47	8,42	5,87	7,82	7,86	11,10
37	CMBTN	1,04	0,32	0,86	0,64	0,92	1,16	0,95	2,31
38	CMEN	2,76	1,45	2,65	2,46	2,05	3,34	2,33	3,70
39	CİMSA	0,64	0,54	0,59	0,82	0,71	0,92	0,75	0,75
40	CUSAN	1,05	1,60	1,27	1,87	1,47	2,18	1,73	2,46
41	DAGİ	0,34	0,38	0,49	0,85	0,53	0,56	1,37	0,84
42	DARDL	-5,66	-0,68	-5,64	0,66	-5,03	0,92	-2,46	1,48
43	DMSAS	1,36	1,25	1,14	1,49	1,07	1,82	1,39	1,94
44	DERİM	0,89	1,06	0,80	1,09	0,83	1,23	1,36	1,31
45	DESA	0,52	0,72	0,70	0,43	0,66	1,36	0,96	1,72
46	DEVA	1,36	2,13	1,46	2,77	1,57	2,81	1,84	2,98
47	DIRIT	-1,19	-1,30	-1,91	-1,00	-2,30	-1,37	-2,34	-1,12
48	DITAS	0,80	0,74	0,82	0,89	0,75	1,70	0,90	1,62
49	DOBUR	1,73	1,79	1,86	5,06	1,78	7,11	2,79	9,06
50	DGKLB	0,03	-0,04	0,13	0,21	-0,03	0,39	0,07	0,40
51	DOGUB	-1,00	2,87	3,61	5,31	5,84	6,91	5,98	6,69
52	DOKTA	0,46	0,89	0,56	1,46	1,04	1,44	1,46	1,64
53	DURDO	0,46	0,80	0,46	0,68	0,73	0,77	0,81	1,07
54	DYOBY	0,27	0,28	0,31	0,54	0,32	0,84	0,49	1,18
55	EGEEN	5,07	4,38	4,68	5,11	4,84	5,43	5,61	10,92
56	EGGUB	1,63	1,13	1,51	1,71	2,02	2,69	1,16	2,94
57	EGPRO	1,24	1,28	1,17	1,40	1,31	1,73	1,44	2,76
58	EGESER	2,19	1,75	2,00	2,00	1,86	2,31	2,10	3,04
59	EPLAS	1,14	2,99	1,28	3,41	1,62	3,47	2,27	4,38
60	EKİZ	-1,27	-0,65	-1,08	0,06	-0,78	0,08	-0,61	0,25
61	EMKEL	-0,11	0,00	0,05	0,21	-0,03	0,06	0,05	0,32
62	EMNIS	-1,90	-1,82	-0,72	-1,40	-1,45	0,68	-1,29	2,37
63	ERBOS	2,90	2,55	2,49	3,24	2,81	4,06	2,36	4,49
64	EREGL	1,42	1,50	1,74	1,54	1,55	1,57	1,67	2,68
65	ERSU	0,88	5,76	0,64	8,24	1,40	9,31	2,44	7,08
66	FMZİP	13,46	30,43	17,89	59,38	16,78	78,11	41,59	77,56
67	FROTO	1,76	1,90	2,01	1,83	2,20	2,22	2,36	3,07
68	FORMT	2,10	0,78	1,67	0,96	2,43	1,22	0,98	1,30
69	FRİGO	0,77	1,20	0,89	1,98	0,83	4,84	1,05	2,09
70	GEDZA	2,41	2,95	2,39	3,99	2,70	4,00	2,60	4,83
71	GENTS	2,01	2,69	1,94	3,15	2,12	3,60	2,71	5,26

72	GEREL	1,24	1,25	1,28	2,44	1,36	2,42	1,52	2,17
73	GOODY	1,41	1,51	1,42	2,48	1,41	2,70	2,69	3,02
74	GOLTS	0,88	0,87	0,77	0,93	0,75	0,99	0,83	1,13
75	GUBRF	0,49	1,31	0,35	2,04	0,53	2,14	0,58	5,56
76	HATEK	0,65	0,89	0,51	1,10	0,63	1,36	1,14	1,62
77	HEKTS	1,29	1,72	1,08	1,20	0,86	1,11	1,28	1,14
78	HURGZ	0,92	0,82	0,73	1,22	0,75	2,12	1,41	1,71
79	IHEVA	1,96	5,53	2,06	5,16	4,96	6,99	9,11	6,41
80	IHGZT	1,16	3,26	1,53	2,49	1,86	6,68	4,58	4,68
81	ISDMR	1,53	2,33	2,72	2,36	2,60	2,15	2,85	3,31
82	IZDMC	-0,48	-0,45	-0,41	-0,52	-0,37	-0,29	-0,33	-0,18
83	JANTS	1,63	1,51	1,69	1,75	1,26	2,37	1,67	3,03
84	KAPLM	0,41	0,63	0,32	0,82	0,35	1,57	0,53	2,77
85	KARDMD	0,82	0,53	0,84	0,66	0,73	0,70	0,68	1,12
86	KARSN	0,05	0,36	0,22	0,89	0,06	1,15	0,54	1,19
87	KRTEK	0,64	0,64	0,63	0,55	0,77	0,87	0,60	0,89
88	KARTN	1,35	1,23	1,31	1,33	1,19	1,59	1,24	35,36
89	KATMR	0,56	0,97	0,92	1,01	0,93	1,29	1,10	1,32
90	KENT	1,71	1,86	1,67	2,98	1,60	102,88	1,99	100,83
91	KERVT	1,17	1,85	1,31	1,97	1,40	2,07	1,68	2,00
92	KLMSN	1,31	1,13	1,37	1,38	1,22	1,28	1,52	1,43
93	KONFRT	1,59	1,80	1,93	2,39	3,21	2,69	1,64	2,08
94	KONYA	8,21	7,02	8,06	8,66	10,05	16,36	11,03	27,95
95	KORDS	1,07	0,74	1,05	0,53	0,88	0,66	0,82	0,91
96	KRSTL	3,30	5,73	3,98	10,49	5,06	10,94	6,57	17,56
97	KUTPO	2,18	2,62	2,15	7,79	2,45	6,08	2,72	9,51
98	LUKSK	1,24	1,45	1,20	1,77	1,29	2,57	1,66	2,82
99	MAKTK	1,72	1,72	2,46	2,77	3,12	3,10	3,40	5,28
100	MRSHL	0,85	1,10	0,79	1,32	0,97	4,94	1,92	5,12
101	MNDRS	0,32	0,21	0,28	0,53	0,46	0,77	0,40	0,58
102	OLMK	0,81	1,83	0,60	1,79	0,75	3,07	0,56	3,63
103	TIRE	0,90	1,82	0,73	1,84	0,84	1,79	1,37	1,88
104	NIBAS	13,70	7,73	12,15	11,71	15,04	26,53	9,38	64,49
105	NUHCM	1,41	2,22	1,21	2,77	1,43	3,25	2,23	6,93
106	OTKAR	1,15	1,21	1,68	1,57	1,80	1,32	1,82	2,20
107	OYLUM	0,24	2,68	0,82	2,43	0,97	3,17	1,44	3,00
108	OZBAL	-1,68	-0,07	-1,72	0,64	-1,78	1,13	-0,75	0,78
109	PARSN	0,50	0,58	0,74	0,74	0,56	0,75	0,75	0,92
110	PENGD	-0,20	0,11	-0,17	-0,02	0,09	3,16	0,01	3,96
111	PETKM	1,03	0,94	1,18	1,05	1,07	1,00	1,00	1,29
112	PETUN	1,35	1,63	1,52	2,18	1,69	2,43	1,86	2,46
113	PINSU	-0,43	-0,39	-0,37	-0,17	-0,21	0,15	-0,25	-0,12
114	PNSUT	0,92	1,14	0,88	1,18	1,01	1,24	1,18	1,28
115	PRZMA	4,15	12,33	4,49	9,65	8,29	3,29	8,93	5,56
116	ROYAL	-0,04	0,23	0,23	0,18	0,25	0,47	0,22	0,51
117	RTLAB	4,35	6,13	3,66	18,64	6,95	18,88	5,12	9,54
118	SANFM	0,31	0,80	0,28	0,82	0,40	1,19	0,81	1,53
119	SAMAT	0,33	0,07	0,51	1,32	0,80	1,51	0,23	3,61
120	SARKY	1,39	1,54	1,23	1,56	1,15	1,89	1,32	1,96
121	SAYAS	0,34	1,76	0,61	4,16	0,95	2,97	1,50	2,21
122	SASA	0,89	0,60	0,74	0,77	0,42	0,78	0,41	1,24
123	SEKUR	0,79	0,59	0,49	0,68	0,53	0,94	0,71	0,98
124	SELGD	3,10	4,39	2,88	5,71	3,25	18,12	5,27	32,95
125	SILVR	0,57	0,79	0,81	1,09	0,85	1,17	1,02	1,74
126	SKTAS	-0,08	-0,59	-0,44	-0,55	-0,53	-0,14	-0,37	-0,04
127	SNPAM	2,81	4,42	3,23	6,90	3,64	10,73	4,56	13,80
128	TATGD	2,25	2,68	1,99	2,87	1,95	2,45	2,35	2,42
129	TMPOL	1,07	1,09	0,89	1,34	0,95	1,39	1,23	1,57
130	TOASO	1,19	1,29	1,31	1,43	1,46	1,34	1,23	1,58
131	TUCLK	0,64	0,73	0,58	0,79	0,64	1,07	0,73	1,02
132	TUKAS	1,72	3,53	2,15	3,39	1,78	2,63	4,15	2,72
133	TMSN	1,36	0,84	1,19	1,18	1,23	1,44	1,23	2,28
134	TUPRS	1,07	0,62	1,11	0,66	1,14	0,84	0,98	0,88
135	PRKAB	1,14	1,66	1,12	2,21	1,32	2,88	1,67	3,38
136	TTRAK	1,12	1,46	1,07	2,15	1,47	2,32	1,82	3,17
137	TBORG	1,42	2,38	1,42	2,47	2,10	3,22	2,66	3,13
138	ULUSE	17,72	10,26	13,40	12,17	13,08	16,44	11,62	10,96
139	ULUUN	1,29	1,19	1,23	1,34	1,23	1,15	1,13	1,21
140	USAK	0,33	0,48	0,37	0,86	0,37	0,99	0,52	1,08
141	ULKER	1,59	1,18	1,25	1,62	1,23	1,67	1,27	1,56
142	VESBE	1,19	1,20	1,21	1,69	1,13	1,70	1,33	1,89
143	VESTL	0,12	0,14	0,20	0,28	0,15	0,28	0,20	0,55
144	VKING	-0,72	-0,57	-0,81	-0,49	-0,86	-0,58	-0,70	-0,31
145	YATAS	1,53	1,68	1,65	1,85	1,83	2,06	1,94	2,52
146	YUNSA	0,70	1,27	0,77	1,36	0,62	1,72	1,31	1,58

Source: Authors' Compilation

The companies' determination within the research scope according to the Altman Z values in Table 4 for the years 2019-2020 according to the threshold values (Table 3) is given in Table 5. Again, RoFF (Risk of Financial Failure) was used for companies with a risk of financial failure, NRoFF (No Risk of Financial Failure) for companies with no risk of financial failure, and UN (Uncertain) for companies with an uncertain risk of financial failure.

Table 5: Financial Status According to Altman Z Values of Manufacturing Companies for 2019-2020

No.	Code	Altman Z-Financial Status							
		2019/3	2020/3	2019/6	2020/6	2019/9	2020/9	2019/12	2020/12
1	ACSEL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
2	ADEL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
3	AFYON	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
4	AKCNS	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF	UC
5	ATEKS	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF	UC
6	AKSA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
7	ALCAR	NRoFF	UC	UC	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
8	ALKA	RoFF	NRoFF	UC	NRoFF	UC	NRoFF	NRoFF	NRoFF
9	ALKIM	UC	UC	UC	NRoFF	UC	NRoFF	UC	NRoFF
10	AEFES	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
11	ARCLK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
12	ARSAN	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF	UC
13	ASUZU	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
14	AVOD	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF	UC
15	AYGAZ	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF
16	BAGFS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
17	BAKAB	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	UC
18	BANVT	RoFF	RoFF	UC	UC	UC	UC	UC	UC
19	BRKSN	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF	UC
20	BLCYT	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	UC	NRoFF
21	BNTAS	NRoFF	NRoFF	UC	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
22	BSOKE	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
23	BTCIM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
24	BRKO	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
25	BRMEN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
26	BRSAN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
27	BOSSA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
28	BFREN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
29	BRISA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
30	BURCE	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
31	BURVA	RoFF	NRoFF	RoFF	NRoFF	UC	NRoFF	NRoFF	NRoFF
32	BUCIM	RoFF	UC	RoFF	UC	RoFF	UC	UC	NRoFF
33	CCOLA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
34	CELHA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
35	CEMAS	RoFF	UC	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
36	CEMTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
37	CMBTN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	UC
38	CMENT	UC	RoFF	UC	UC	UC	NRoFF	UC	NRoFF
39	CIMSA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
40	CUSAN	RoFF	RoFF	RoFF	UC	RoFF	UC	RoFF	UC
41	DAGI	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
42	DARDL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
43	DMSAS	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF	UC
44	DERIM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
45	DESA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
46	DEVA	RoFF	UC	RoFF	UC	RoFF	UC	UC	UC
47	DIRIT	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
48	DITAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
49	DOBUR	RoFF	RoFF	UC	NRoFF	RoFF	NRoFF	UC	NRoFF
50	DGKLB	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
51	DOGUB	RoFF	UC	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
52	DOKTA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
53	DURDO	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
54	DYOBY	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
55	EGEEN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
56	EGGUB	RoFF	RoFF	RoFF	RoFF	RoFF	UC	UC	UC
57	EGPRO	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	UC
58	EGESER	UC	RoFF	UC	UC	UC	UC	UC	NRoFF
59	EPLAS	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	UC	NRoFF
60	EKIZ	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
61	EMKEL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
62	EMNIS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	UC
63	ERBOS	UC	UC	UC	NRoFF	UC	NRoFF	UC	NRoFF
64	EREGL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	UC
65	ERSU	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	UC	NRoFF
66	FMZIP	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
67	FROTO	UC	UC	UC	UC	UC	UC	UC	NRoFF
68	FORMT	UC	RoFF	UC	RoFF	RoFF	RoFF	RoFF	RoFF
69	FRIGO	RoFF	RoFF	RoFF	UC	RoFF	NRoFF	RoFF	UC
70	GEDZA	UC	UC	UC	NRoFF	UC	NRoFF	UC	NRoFF
71	GENTS	UC	UC	UC	NRoFF	UC	NRoFF	UC	NRoFF
72	GEREL	RoFF	RoFF	RoFF	UC	RoFF	UC	RoFF	UC
73	GOODY	RoFF	RoFF	RoFF	UC	RoFF	UC	UC	NRoFF
74	GOLTS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
75	GUBRF	RoFF	RoFF	RoFF	UC	RoFF	UC	RoFF	NRoFF
76	HATEK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
77	HEKTS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
78	HURGZ	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF	RoFF
79	IHEVA	UC	NRoFF	UC	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
80	IHGZT	RoFF	NRoFF	RoFF	UC	UC	NRoFF	NRoFF	NRoFF
81	ISDMR	RoFF	UC	UC	UC	UC	UC	UC	NRoFF
82	IZDMC	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
83	JANTS	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF	NRoFF
84	KAPLM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	UC
85	KARDMD	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
86	KARSN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
87	KRTEK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
88	KARTN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
89	KATMR	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
90	KENT	RoFF	UC	RoFF	UC	RoFF	NRoFF	UC	NRoFF

91	KERVT	RoFF	UC	RoFF	UC	RoFF	UC	RoFF	UC
92	KLMSN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
93	KONFRT	RoFF	RoFF	UC	UC	NRoFF	UC	RoFF	UC
94	KONYA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
95	KORDS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
96	KRSTL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
97	KUTPO	UC	UC	UC	NRoFF	UC	NRoFF	UC	NRoFF
98	LUKSK	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF	UC
99	MAKTK	RoFF	RoFF	UC	UC	NRoFF	NRoFF	NRoFF	NRoFF
100	MRSHL	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	UC	NRoFF
101	MNDRS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
102	OLMK	RoFF	UC	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
103	TIRE	RoFF	UC	RoFF	UC	RoFF	RoFF	RoFF	UC
104	NIBAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
105	NUHCM	RoFF	UC	RoFF	UC	RoFF	NRoFF	UC	NRoFF
106	OTKAR	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	UC	UC
107	OYLUM	RoFF	UC	RoFF	UC	RoFF	NRoFF	RoFF	NRoFF
108	OZBAL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
109	PARSN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
110	PENGD	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
111	PETKM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
112	PETUN	RoFF	RoFF	RoFF	UC	RoFF	UC	UC	UC
113	PINSU	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
114	PNSUT	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
115	PRZMA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
116	ROYAL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
117	RTLAB	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
118	SANFM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
119	SAMAT	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
120	SARKY	RoFF	RoFF	RoFF	RoFF	RoFF	UC	RoFF	UC
121	SAYAS	RoFF	RoFF	RoFF	NRoFF	RoFF	UC	RoFF	UC
122	SASA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
123	SEKUR	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
124	SELGD	NRoFF	NRoFF	UC	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
125	SILVR	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
126	SKTAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
127	SNPAM	UC	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
128	TATGD	UC	UC	UC	UC	UC	UC	UC	UC
129	TMPOL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
130	TOASO	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
131	TUCLK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
132	TUKAS	RoFF	NRoFF	UC	NRoFF	RoFF	UC	NRoFF	UC
133	TMSN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	UC
134	TUPRS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
135	PRKAB	RoFF	RoFF	RoFF	UC	RoFF	UC	RoFF	NRoFF
136	TIRAK	RoFF	RoFF	RoFF	UC	RoFF	UC	UC	NRoFF
137	TBORG	RoFF	UC	RoFF	UC	UC	NRoFF	UC	NRoFF
138	ULUSE	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
139	ULUUN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
140	USAK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
141	ULKER	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
142	VESBE	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	UC
143	VESTL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
144	VKING	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
145	YATAS	RoFF	RoFF	RoFF	UC	UC	UC	UC	UC
146	YUNSA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
TOTAL	NO RISK OF FAILURE	14	22	13	32	19	41	22	51
	RISK OF FINANCIAL FAILURE	120	104	112	88	111	75	96	64
	UNCERTAIN	12	20	21	26	16	30	28	31

Source: Authors' Compilation

When Table 5 is examined, it is seen that in the period of 2019/3, when the number of financially unsuccessful firms was the highest, 120 of 146 firms failed Altman Z scores. According to the Altman Z-score, it is seen that the period with the highest success belongs to 2020/12 where 51 out of 146 companies are successful. The companies that have been successful in each quarter with the Altman Z Score calculated for the period 2019-2020 are: ACSEL, BFREN, CEMTS, EGEEN, FMZIP, KONYA, KRSTL, NIBAS, PRZMA, RTLAB, ULUSE. Companies that failed in terms of Altman Z Score in all periods are: ADEL, AKSA, AEFES, ARCLK, BAGFS, BSOKE, BTCIM, BRKO, BRMEN, BRSAN, BOSSA, BRISA, BURCE, COLA, CELHA, CIMSA, DAGI, DARDNL, DERİM, DESA, DIRIT, DITAS, DGKLB, DOKTA, DURDO, DYOBY, EKİZ, EMKEL, GOLTS, HATEK, HEKTS, IZDMC, KARDMD, KARSN, KRTEK, KATMR, KLMSN, KORDS, MNDRS, PETKM, PINSU, PNSUT, ROYAL, SANFM, SASA, SEKUR, SILVR, SKTAS, TMPOL, TOASO, TUCLK, TUPRS, ULUUN, USAK, ULKER, VESTL, VKING, YUNSA.

According to the formula in Table 3, the Springgate model's values of the BIST manufacturing companies within the scope of the research for the years 2019-2020 are given in Table 6.

Table 6: Springgate Values of BIST Manufacturing Companies for 2019-2020

No.	Code	Springgate							
		2019/3	2020/3	2019/6	2020/6	2019/9	2020/9	2019/12	2020/12
1	ACSEL	0,86	0,85	1,67	1,16	0,91	1,09	0,96	1,38
2	ADEL	0,83	0,68	0,61	0,66	0,62	0,65	0,50	0,42
3	AFYON	-0,31	-0,36	-0,30	0,05	-0,26	0,10	-0,35	0,06
4	AKCNS	0,16	0,17	0,25	0,37	0,29	0,48	0,35	0,43
5	ATEKS	0,28	0,22	0,29	0,14	0,25	0,24	0,30	0,55
6	AKSA	0,38	0,34	0,34	0,19	0,34	0,51	0,28	0,69
7	ALCAR	1,08	1,07	1,08	1,10	1,21	1,28	1,14	1,22
8	ALKA	0,74	1,15	1,14	1,68	1,08	1,43	1,23	1,25
9	ALKIM	1,05	1,27	1,22	1,30	1,17	1,26	1,23	1,16
10	AEFES	0,27	0,33	0,48	0,47	0,53	0,56	0,42	0,43
11	ARCLK	0,76	0,77	0,80	0,77	0,82	0,82	0,80	0,90
12	ARSAN	0,21	0,44	0,27	0,24	0,33	0,61	0,20	0,77
13	ASUZU	0,30	0,28	0,30	0,22	0,23	0,28	0,50	0,51
14	AVOD	0,35	0,34	0,44	0,21	0,42	0,22	0,24	0,18
15	AYGAZ	0,41	0,30	0,52	0,49	0,53	0,62	0,56	0,60
16	BAGFS	0,25	0,21	0,20	0,16	0,31	0,13	0,05	0,30
17	BAKAB	0,48	0,53	0,50	0,58	0,48	0,55	0,45	0,64
18	BANVT	0,74	0,65	1,22	0,72	0,86	0,63	0,70	0,59
19	BRKSN	0,73	0,51	0,39	0,47	0,69	0,94	0,42	1,06
20	BLCYT	0,65	0,89	0,73	0,39	0,92	0,94	1,38	0,82
21	BNTAS	0,79	0,94	0,85	0,95	0,73	1,09	1,01	0,74
22	BSOKE	-0,03	-0,12	-0,21	-0,17	-0,04	-0,21	-0,32	-0,14
23	BTCIM	0,02	-0,04	-0,04	-0,08	0,03	-0,09	-0,15	-0,02
24	BRKO	-0,05	-0,10	-0,01	-0,24	-0,23	-0,01	-0,16	0,03
25	BRMEN	-0,62	-1,39	-0,65	0,09	-0,69	-1,13	-0,66	-0,85
26	BRSAN	0,23	0,15	0,27	0,07	0,18	0,11	0,22	0,18
27	BOSSA	0,39	0,37	0,44	0,19	0,47	0,44	0,46	0,71
28	BFREN	1,61	1,26	1,44	0,62	0,85	1,29	1,06	1,04
29	BRISA	0,32	0,25	0,34	0,18	0,39	0,38	0,27	0,66
30	BURCE	0,14	0,06	0,20	0,07	0,24	0,31	0,18	0,24
31	BURVA	0,68	0,50	0,73	0,43	0,88	0,82	0,85	0,80
32	BUCIM	0,79	0,78	0,86	0,76	0,70	0,98	0,76	1,12
33	CCOLA	0,46	0,52	0,68	0,66	0,75	0,87	0,50	0,58
34	CELHA	0,30	0,29	0,44	0,11	0,33	0,30	0,26	0,42
35	CEMAS	0,26	0,60	0,33	1,00	0,22	0,83	-0,10	-0,05
36	CEMTS	1,00	1,05	1,25	1,20	0,86	1,22	1,14	1,59
37	CMBTN	0,49	0,20	0,41	0,18	0,45	0,24	0,44	0,26
38	CMENT	0,15	0,13	0,25	0,13	0,24	0,31	0,27	0,42
39	CIMS A	0,04	0,07	0,03	0,15	0,12	0,13	0,08	0,08
40	CUSAN	0,53	0,74	0,68	0,68	0,62	0,70	0,68	0,75
41	DAGI	0,54	0,59	0,67	0,45	0,68	0,61	0,76	0,50
42	DARDL	-0,02	1,31	0,34	0,84	0,51	0,40	0,83	0,60
43	DMSAS	0,66	0,56	0,54	0,46	0,46	0,67	0,62	0,89
44	DERIM	0,54	0,54	0,47	0,43	0,49	0,49	0,64	0,46
45	DESA	0,75	0,65	0,78	0,29	0,72	0,84	0,94	0,86
46	DEVA	0,80	0,96	0,79	0,83	0,71	0,90	0,82	0,92
47	DIRIT	-0,35	0,13	-0,55	-0,12	-1,01	-0,41	-0,40	-0,60
48	DITAS	0,73	0,55	0,76	0,44	0,78	0,77	0,58	0,89
49	DOBUR	1,64	1,13	1,35	1,73	1,15	1,20	1,51	1,61
50	DGKLB	0,29	0,41	0,49	0,33	0,33	0,55	0,38	0,65
51	DOGUB	-0,32	-0,12	-0,18	-0,02	0,02	0,07	-0,03	0,14
52	DOKTA	0,17	0,22	0,12	0,04	0,32	0,06	0,31	0,33
53	DURDO	0,46	0,42	0,57	0,34	0,76	0,42	0,66	0,65
54	DYOBY	0,38	0,31	0,44	0,45	0,40	0,66	0,48	0,70
55	EGEEN	1,33	0,90	1,14	0,61	0,97	0,99	0,95	0,94
56	EGGUB	0,57	0,39	0,57	0,32	0,55	0,38	0,13	0,40
57	EGPRO	0,44	0,58	0,53	0,53	0,57	0,60	0,59	0,79
58	EGESER	0,74	0,76	0,87	0,83	0,77	1,00	0,84	1,10
59	EPLAS	0,71	1,18	0,69	0,98	0,77	1,24	0,73	1,40
60	EKIZ	-0,32	-0,17	-0,27	-0,30	-0,17	-0,29	-0,17	-0,04
61	EMKEL	0,01	0,03	0,04	0,05	0,00	0,03	0,03	0,14
62	EMNIS	-0,41	0,25	0,17	0,53	0,11	0,73	0,00	1,86
63	ERBOS	1,17	0,90	1,19	0,92	0,95	1,10	0,72	1,31
64	EREGL	0,56	0,52	0,69	0,53	0,58	0,56	0,49	0,72
65	ERSU	0,23	0,38	0,29	0,35	0,66	0,38	0,41	0,39
66	FMZIP	2,15	2,09	2,75	1,42	2,02	1,58	2,14	2,28
67	FROTO	0,54	0,63	0,57	0,43	0,63	0,78	0,73	1,11
68	FORMT	0,65	0,46	0,68	0,54	0,67	0,43	0,77	0,61
69	FRIGO	0,74	0,75	0,85	0,92	0,56	0,81	0,65	0,73
70	GEDZA	0,89	0,91	0,90	0,94	0,81	0,93	0,80	1,06
71	GENTS	0,72	0,91	0,92	0,88	0,88	1,27	0,81	1,38
72	GEREL	0,58	0,54	0,59	0,62	0,59	0,60	0,44	0,60
73	GOODY	0,56	0,67	0,68	0,67	0,67	1,16	1,22	0,94
74	GOLTS	0,49	0,38	0,36	0,41	0,30	0,35	0,21	0,26
75	GUBRF	0,34	0,56	0,27	0,32	0,25	0,43	0,21	0,47
76	HATEK	0,18	0,07	0,15	0,19	0,24	0,27	0,40	0,53
77	HEKTS	1,01	0,94	0,80	0,46	0,59	0,53	0,73	0,42
78	HURGZ	0,46	0,32	0,36	0,13	0,26	0,28	0,42	0,18
79	IHEVA	0,72	0,70	0,69	0,77	0,89	0,91	0,90	1,17
80	IHGZT	0,40	0,11	0,36	0,30	0,48	0,33	1,18	0,49
81	ISDMR	0,52	0,61	0,87	0,62	0,68	0,65	0,59	0,98
82	IZDMC	-0,29	-0,29	-0,26	-0,34	-0,17	-0,28	-0,23	-0,12
83	JANTS	0,88	0,80	1,05	0,96	0,64	1,04	0,80	1,21
84	KAPLM	0,18	0,23	0,07	0,04	-0,01	0,28	0,10	0,27
85	KARDMD	0,22	0,08	0,27	0,10	0,20	0,14	0,10	0,37

86	KARSN	0,06	0,16	0,17	0,24	0,14	0,41	0,23	0,61
87	KRTEK	0,50	0,42	0,53	0,32	0,57	0,41	0,30	0,43
88	KARTN	1,16	1,03	1,12	1,13	0,93	1,32	0,97	1,35
89	KATMR	0,43	0,74	0,78	0,75	0,84	0,91	0,84	0,86
90	KENT	0,65	0,70	0,72	0,68	0,57	0,67	0,63	0,53
91	KERVY	0,73	0,79	0,83	0,76	0,83	0,78	0,75	1,02
92	KLMSN	0,81	0,60	0,84	0,72	0,67	0,70	0,73	0,79
93	KONFRT	0,79	0,53	1,00	0,63	0,61	0,45	0,32	0,46
94	KONYA	0,56	0,40	0,56	0,59	0,77	0,90	0,71	0,70
95	KORDS	0,46	0,31	0,46	0,07	0,37	0,21	0,33	0,36
96	KRSTL	0,79	0,79	0,66	0,78	0,74	0,78	0,67	0,51
97	KUTPO	0,99	0,89	0,95	0,90	0,90	0,93	1,12	1,33
98	LUKSK	0,44	0,37	0,57	0,36	0,45	0,54	0,52	0,83
99	MAKTK	0,86	0,73	0,89	0,49	0,94	0,68	0,64	0,71
100	MRSHL	0,65	0,59	0,63	0,52	0,60	0,49	0,84	0,51
101	MNDRS	0,15	0,04	0,12	0,19	0,28	0,36	0,13	0,39
102	OLMK	0,49	0,57	0,38	0,58	0,47	0,56	0,32	0,77
103	TIRE	0,41	0,43	0,35	0,47	0,41	0,41	0,37	0,54
104	NIBAS	0,15	0,24	0,16	0,17	0,27	0,10	0,46	-0,15
105	NUHCM	0,38	0,75	0,37	0,80	0,42	0,80	0,56	0,70
106	OTKAR	0,58	0,68	1,16	0,81	1,08	0,67	0,89	0,99
107	OYLUM	0,33	0,62	0,36	0,68	0,33	0,66	0,44	0,62
108	OZBAL	-0,64	0,06	-0,76	0,19	-0,72	0,16	-0,27	-0,01
109	PARSN	0,13	0,13	0,07	0,04	0,02	0,05	0,03	0,27
110	PENGD	0,01	0,04	0,13	-0,07	0,25	0,45	0,03	0,56
111	PEIKM	0,59	0,51	0,62	0,56	0,56	0,57	0,51	0,62
112	PETUN	0,36	0,46	0,47	0,42	0,55	0,42	0,47	0,47
113	PINSU	0,10	0,09	0,19	0,10	0,35	0,27	0,14	-0,03
114	PNSUT	0,38	0,47	0,35	0,37	0,34	0,34	0,43	0,37
115	PRZMA	0,32	0,71	0,41	0,41	0,54	0,46	0,60	0,64
116	ROYAL	0,20	0,44	0,46	0,27	0,28	0,47	0,25	0,58
117	RTLAB	0,78	0,96	1,15	1,64	0,09	1,05	0,34	1,32
118	SANFM	0,24	0,33	0,25	0,32	0,32	0,38	0,37	0,46
119	SAMAT	0,19	0,18	0,29	0,50	0,44	0,41	-0,02	0,60
120	SARKY	0,70	0,73	0,62	0,69	0,58	0,84	0,58	0,82
121	SAYAS	0,42	0,87	0,66	1,35	0,70	0,79	0,69	1,19
122	SASA	0,13	-0,16	0,03	-0,04	-0,11	-0,10	-0,15	0,15
123	SEKUR	0,57	0,37	0,40	0,40	0,36	0,31	0,42	0,26
124	SELGD	0,67	0,47	0,67	0,45	0,68	0,69	1,04	0,85
125	SILVR	0,16	0,40	0,33	0,27	0,33	0,46	0,42	0,50
126	SKTAS	0,22	-0,08	0,07	-0,16	-0,01	-0,02	0,06	0,05
127	SNPAM	0,33	0,39	0,32	0,09	0,25	0,21	0,77	0,59
128	TATGD	1,01	1,22	1,00	1,06	0,88	0,87	1,04	0,58
129	TMPOL	0,60	0,38	0,47	0,44	0,46	0,52	0,46	0,62
130	TOASO	0,44	0,49	0,47	0,42	0,48	0,52	0,55	0,61
131	TUCLK	0,26	0,22	0,23	0,17	0,29	0,26	0,17	0,41
132	TUKAS	0,40	0,57	0,41	0,49	0,38	0,56	0,50	0,50
133	TMSN	0,34	0,23	0,30	0,38	0,24	0,46	0,24	0,70
134	TUPRS	0,29	0,01	0,36	0,16	0,29	0,28	0,24	0,23
135	PRKAB	0,65	0,69	0,65	0,76	0,75	0,71	0,78	0,77
136	TTRAK	0,51	0,71	0,47	0,78	0,60	0,96	0,80	1,21
137	TBORG	0,53	0,61	0,70	0,77	1,16	1,14	1,04	1,00
138	ULUSE	1,61	0,87	1,17	0,94	1,31	0,98	1,20	0,92
139	ULUUN	0,67	0,62	0,72	0,63	0,61	0,56	0,61	0,66
140	USAK	0,16	0,30	0,22	0,38	0,20	0,41	0,32	0,37
141	ULKER	0,91	0,46	0,54	0,71	0,58	0,68	0,47	0,98
142	VESBE	0,36	0,40	0,45	0,53	0,41	0,60	0,43	0,73
143	VESTL	0,09	0,16	0,15	0,18	0,13	0,25	0,17	0,38
144	VKING	-0,06	-0,05	-0,20	-0,07	-0,23	-0,20	-0,17	-0,20
145	YATAS	0,88	1,08	1,15	0,83	1,06	1,34	1,22	1,41
146	YUNSA	0,51	0,75	0,53	0,46	0,41	0,68	0,61	0,57

Source: Authors' Compilation

The determination of the companies within the scope of the research according to the Springate values in Table 6 for the years 2019-2020 according to the threshold values (Table 3) is given in Table 7. RoFF (Risk of Financial Failure) was used for companies with a risk of financial failure and NRoFF (No Risk of Financial Failure) for companies with no risk of financial failure.

Table 7: Financial Status According to Springate Values of Manufacturing Companies for 2019-2020

No.	Code	Springate-Financial Status							
		2019/3	2020/3	2019/6	2020/6	2019/9	2020/9	2019/12	2020/12
1	ACSEL	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
2	ADEL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
3	AFYON	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
4	AKCNS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
5	ATEKS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
6	AKSA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
7	ALCAR	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
8	ALKA	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
9	ALKIM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
10	AEFES	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
11	ARCLK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
12	ARSAN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
13	ASUZU	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
14	AVOD	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
15	AYGAZ	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF

16	BAGFS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
17	BAKAB	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
18	BANVT	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF	RoFF
19	BRKSN	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
20	BLCYT	RoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF
21	BNTAS	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF	RoFF
22	BSOKE	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
23	BTCIM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
24	BRKO	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
25	BRMEN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
26	BRSAN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
27	BOSSA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
28	BFREN	NRoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF	NRoFF
29	BRISA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
30	BURCE	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
31	BURVA	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF
32	BUCIM	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
33	CCOLA	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF
34	CELHA	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF
35	CEMAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
36	CEMTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
37	CMBTN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
38	CMENT	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
39	CIMSA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
40	CUSAN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
41	DAGI	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
42	DARDL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
43	DMSAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
44	DERIM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
45	DESA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
46	DEVA	RoFF	NRoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
47	DIRIT	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
48	DITAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
49	DOBUR	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
50	DGKLB	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
51	DOGUB	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
52	DOKTA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
53	DURDO	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
54	DYOBY	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
55	EGEEN	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
56	EGGUB	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
57	EGPRO	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
58	EGESER	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
59	EPLAS	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
60	EKIZ	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
61	EMKEL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
62	EMNIS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
63	ERBOS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF
64	EREGL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
65	ERSU	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
66	FMZIP	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
67	PROTO	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
68	FORMT	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
69	FRIGO	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF
70	GEDZA	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
71	GENTS	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF
72	GEREL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
73	GOODY	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	NRoFF	NRoFF
74	GOLTS	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF
75	GUBRF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
76	HATEK	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF
77	HEKTS	NRoFF	NRoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
78	HURGZ	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF
79	IHEVA	RoFF	RoFF	RoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
80	IHGZI	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
81	ISDMR	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
82	IZDMC	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
83	JANTS	NRoFF	RoFF	NRoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
84	KAPLM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
85	KARDMD	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
86	KARSN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
87	KRIEK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
88	KARTN	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
89	KATMR	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF
90	KENT	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
91	KERVY	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
92	KLMSN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
93	KONFRT	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF	RoFF
94	KONYA	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF
95	KORDS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
96	KRSTL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
97	KUIPO	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
98	LUKSK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
99	MAKTK	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	RoFF	RoFF
100	MRSHL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
101	MNDRS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
102	OLMK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
103	TIRE	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
104	NIBAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
105	NUHCM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
106	OTKAR	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
107	OYLUM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
108	OZBAL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
109	PARSN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF

110	PENG	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
111	PETKM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
112	PETUN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
113	PINSU	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
114	PNSUT	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
115	PRZMA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
116	ROYAL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
117	RTLAB	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
118	SANFM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
119	SAMAT	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
120	SARKY	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
121	SAYAS	RoFF	NRoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	NRoFF
122	SASA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
123	SEKUR	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
124	SELGD	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
125	SILVR	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
126	SKTAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
127	SNPAM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
128	TATGD	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF
129	TMPOL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
130	TOASO	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
131	TUCLK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
132	TUKAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
133	TMSN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
134	TUPRS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
135	PRKAB	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
136	TTRAK	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
137	TBORG	RoFF	RoFF	RoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
138	ULUSE	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
139	ULUUN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
140	USAK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
141	ULKER	NRoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
142	VESBE	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
143	VESTL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
144	VKING	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
145	YATAS	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
146	YUNSA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
TOTAL	NO RISK OF FAILURE	20	20	25	23	21	36	27	38
	RISK OF FINANCIAL FAILURE	126	126	121	123	125	110	119	108

Source: Authors' Compilation

When Table 7 is examined, the period of 2020/12 is seen as the period with the highest success, and the Springate scores show a total of 38 companies being successful. The least successful periods were experienced in 2019/3 and 2019/6. Only 20 companies scored successfully within those periods. In Table 7, companies that are financially successful in all quarters in terms of Springate scores as of 2019-2020 and quarterly periods are as follows: ALCAR, ALKIM, CEMTS, KUTPO, ULUSE. The companies that failed in all periods are ADEL, AFYON, AKCNS, ATEKS, AKSA, AEFES, ARSAN, ASUZU, AVOD, AYGAZ, BAGFS, BAKAB, BTCIM, BRKO, BRMEN BRSAN, BOSSA, BRISA, BURCE, CEMAS, CMBTN, CMENT, CIMSA, CUSAN, DAGI, DARDL, DERİM, DIRIT, DGKLB, DOGUB, DOKTA, DURDO, DYOBY, EGGUB, EGPRO, EKİZ, EMKEL, EREGL, ERSU, FORMT, GEREL, GUBRF, IZDMC, KAPLM, KARDMD, KARSN, KENT, KLMSN, KORDS, KRSTL, LUKSK, MRSHL, MNDRS, OLMK, TIRE, NIBAS, NUHCM, OYLUM, OZBAL, PARSN, PENG, PETKM, PETUN, PINSU, PNSUT, PRZMA, ROYAL, SANFM, SAMAT, SARKY, TOASO, TUCLK, TUKAS, TMSN, TUPRS, PRKAB, ULUUN, USAK, VESBE, VESTL, VKING and YUNSA.

According to the formula in Table 3, the Taffler model's values of the BIST manufacturing companies within the scope of the research for the years 2019-2020 are given in Table 8.

Table 8: Taffler Model's Values of BIST Manufacturing Companies for 2019-2020

No.	Code	Taffler							
		2019/3	2020/3	2019/6	2020/6	2019/9	2020/9	2019/12	2020/12
1	ACSEL	9.41	13.79	12.59	18.67	9.47	18.67	10.22	23.28
2	ADEL	0.76	-0.24	-0.67	-0.64	-0.62	-0.80	0.46	-1.28
3	AFYON	-1.77	-2.50	-1.82	2.05	-1.59	2.56	-2.23	2.50
4	AKCNS	0.23	0.35	0.41	1.96	1.07	3.00	2.18	2.47
5	ATEKS	3.35	2.47	3.24	2.36	2.86	2.63	2.93	7.16
6	AKSA	0.97	0.52	0.57	0.22	0.71	2.11	0.29	3.18

7	ALCAR	8,34	7,13	6,21	6,72	8,50	7,83	8,02	7,49
8	ALKA	2,54	7,03	6,39	13,36	6,17	13,39	10,30	10,49
9	ALKİM	8,22	11,93	9,70	10,89	9,48	12,28	13,01	11,24
10	AEFES	1,83	1,97	2,82	3,05	3,34	3,49	2,85	2,29
11	ARCLK	1,23	1,41	1,09	1,79	1,06	1,02	1,26	1,17
12	ARSAN	3,55	5,56	3,90	5,01	5,03	8,14	3,09	10,10
13	ASUZU	-0,40	-0,33	-0,85	-0,48	-0,90	-0,50	-0,04	0,28
14	AVOD	1,08	-0,43	1,15	-0,74	1,01	-1,52	-0,35	-0,82
15	AYGAZ	0,68	0,17	2,39	1,77	1,89	1,51	2,31	2,01
16	BAGFS	1,56	0,46	1,06	0,26	3,50	-1,08	-0,65	2,53
17	BAKAB	1,32	1,61	1,23	1,52	1,39	1,23	1,25	2,23
18	BANVT	1,00	1,96	4,02	2,21	2,88	1,64	2,08	-0,14
19	BRKSN	0,14	0,26	0,23	0,67	-0,16	2,44	0,31	2,65
20	BLCYT	6,31	14,16	7,72	9,36	10,36	17,98	20,01	16,47
21	BNTAS	13,03	17,20	13,67	16,58	12,45	18,09	18,87	13,25
22	BSOKE	-1,42	-2,55	-1,19	-2,41	0,99	-5,47	-3,35	-1,64
23	BTCIM	-0,21	-1,41	-0,19	-1,48	1,30	-3,54	-1,62	-0,99
24	BRKO	0,71	0,04	1,18	-1,19	-0,56	1,11	-0,72	1,77
25	BRMEN	-4,85	-15,04	-4,99	-2,11	-5,32	-10,01	-6,10	-22,92
26	BRSAN	1,09	0,58	1,68	0,51	0,92	0,58	0,60	1,03
27	BOSSA	0,78	0,39	0,80	-0,52	1,92	-0,05	1,41	2,52
28	BFREN	14,76	10,86	9,69	3,90	5,61	9,11	7,91	4,13
29	BRİSA	0,88	-0,36	0,89	-0,41	0,86	0,84	-0,02	1,68
30	BURCE	-0,37	0,63	-0,26	0,42	-0,27	3,35	1,25	0,85
31	BURVA	0,54	-0,15	0,41	-1,41	1,29	0,04	1,89	0,03
32	BUCİM	8,62	9,04	9,10	8,24	7,45	10,31	8,14	10,80
33	COLLA	2,42	2,73	2,93	3,89	3,78	6,02	2,45	2,12
34	CELHA	-3,28	-4,07	-3,07	-4,64	-2,99	-4,45	-4,28	-3,73
35	CEMAS	2,41	8,07	2,22	12,48	1,78	13,79	-4,20	0,40
36	CEMTS	11,51	14,45	15,88	19,94	12,99	17,16	16,89	24,39
37	CMBTN	0,86	-2,46	0,04	-2,66	-0,12	-3,57	-0,93	-3,41
38	CMENT	2,92	1,18	3,25	0,41	3,20	1,89	3,30	4,10
39	CİMSA	0,30	-0,35	-0,35	0,66	0,62	0,37	0,24	-0,54
40	CUSAN	1,05	2,75	2,21	2,30	2,26	2,69	2,08	2,97
41	DAGI	0,60	0,69	1,81	2,69	2,28	3,35	2,58	1,69
42	DARDL	-26,09	-5,45	-26,42	0,59	-22,59	-2,19	-16,47	-1,30
43	DMSAS	2,55	1,70	1,31	1,95	0,92	2,38	2,35	3,57
44	DERİM	-0,69	-0,57	-1,46	-0,60	-1,79	-0,86	-0,29	-1,21
45	DESA	-0,45	-1,33	-0,44	-1,66	-0,56	0,47	-0,65	1,01
46	DEVA	3,63	5,49	3,06	4,77	3,05	6,25	4,33	5,69
47	DIRIT	-3,60	1,47	-5,02	-0,41	-10,76	-3,27	-5,12	-6,27
48	DITAS	0,77	-1,74	1,00	-1,40	0,96	-0,41	-0,28	0,41
49	DOBUR	2,53	0,68	2,17	-1,00	1,18	1,78	1,27	0,59
50	DGKLB	-2,55	-3,06	-2,05	-3,20	-2,65	-2,55	-3,72	-2,20
51	DOGUB	-3,35	1,17	2,20	-0,37	3,82	2,41	2,61	1,67
52	DOKTA	-0,68	0,06	-0,23	-0,90	1,40	-1,39	1,11	0,41
53	DURDO	0,25	-0,10	1,00	-0,89	2,49	-1,70	1,59	1,73
54	DYOBY	-2,56	-2,80	-2,74	-1,93	-2,54	-1,42	-1,43	-0,22
55	EGEEN	18,29	11,32	14,06	7,40	12,01	11,76	11,92	8,98
56	EGGUB	1,10	-0,32	1,85	0,36	2,47	1,68	-1,03	0,66
57	EGPRO	-0,25	0,77	-0,14	-0,04	0,49	0,20	0,40	3,48
58	EGESER	7,11	5,25	6,17	4,95	5,27	6,73	6,04	7,15
59	EPLAS	0,95	6,97	0,98	5,05	2,15	7,63	1,14	9,54
60	EKİZ	-4,03	-2,04	-4,66	-2,36	-3,88	-3,46	-1,52	-0,08
61	EMKEL	-2,00	-0,94	-1,33	-1,21	-1,67	-1,57	-1,23	-0,41
62	EMNIS	-6,67	-0,28	1,56	1,42	0,38	1,92	0,34	25,63
63	ERBOS	8,33	6,69	6,95	7,70	6,48	9,06	4,01	10,60
64	EREGL	5,54	6,01	8,06	6,10	6,52	6,93	5,75	8,50
65	ERSU	4,55	6,16	4,33	6,91	9,91	6,60	5,92	5,71
66	FMZİP	27,25	22,72	38,86	23,00	25,52	22,74	39,61	27,75
67	PROTO	-0,78	0,17	-0,33	-0,23	0,28	1,27	0,74	2,35
68	FORMT	2,84	0,35	2,65	0,28	2,92	1,42	-2,17	0,89
69	FRİGO	2,15	2,34	4,87	4,43	4,36	4,98	2,14	3,46
70	GEDZA	9,46	9,49	9,21	10,71	8,52	10,39	8,40	9,29
71	GENTS	6,30	8,73	6,99	7,76	7,30	11,96	6,60	12,51
72	GEREL	2,58	1,09	0,38	2,26	1,28	2,19	0,20	1,89
73	GOODY	-0,06	1,26	0,55	3,04	0,56	4,69	7,33	4,23
74	GOLTS	1,52	0,86	0,96	0,47	1,16	-0,07	0,82	0,50
75	GUBRF	-1,59	-2,17	-2,04	-2,20	-1,97	-2,51	-3,23	-0,52
76	HATEK	2,59	2,01	1,47	2,84	2,06	2,70	6,17	5,23
77	HEKTS	3,16	4,99	1,93	0,63	0,69	1,15	3,71	0,33
78	HURGZ	4,57	3,55	3,42	1,41	2,07	2,95	6,07	1,47
79	IHEVA	7,96	9,82	5,81	10,04	14,66	13,47	14,31	18,30
80	IHGZT	7,01	0,73	5,22	3,70	7,91	4,24	20,30	6,64
81	ISDMR	5,08	7,60	11,34	8,91	8,33	9,57	8,05	13,78
82	IZDMC	-4,98	-5,13	-3,82	-5,54	-3,15	-6,43	-4,29	-2,46
83	JANTS	5,65	4,22	6,48	6,09	3,78	8,53	6,60	9,25
84	KAPLM	-1,96	-1,50	-2,36	-2,45	-3,21	-1,99	-2,32	-2,34
85	KARDMD	1,46	-0,14	2,17	-0,32	1,75	-0,51	0,36	1,95
86	KARSN	-2,17	-0,85	-1,12	-0,02	-1,21	0,65	-0,85	1,30
87	KRTEK	1,26	0,75	1,31	-0,32	2,90	0,38	-0,85	1,08
88	KARTN	15,23	13,05	13,76	13,84	11,71	17,82	13,32	17,15
89	KATMR	-1,10	2,20	2,28	2,30	3,43	1,64	2,19	3,33
90	KENT	1,60	2,04	1,13	1,37	1,08	4,29	1,49	2,80
91	KERVV	3,03	3,65	4,28	3,56	4,74	4,07	3,58	8,77
92	KLMSN	2,22	0,39	2,26	1,43	1,76	1,19	1,86	3,00
93	KONFRT	5,20	1,31	7,94	3,11	5,16	0,82	0,08	0,26
94	KONYA	8,06	5,84	7,98	6,61	10,39	11,53	9,01	6,88
95	KORDS	3,25	2,64	2,91	-0,34	3,14	2,12	2,75	2,87
96	KRSTL	9,01	7,96	6,60	7,52	7,02	6,79	7,72	7,94
97	KUTPO	6,36	6,18	6,67	8,15	6,73	6,95	9,80	8,83
98	LUKSK	3,56	2,93	4,45	1,94	4,88	2,12	4,08	8,35
99	MAKTK	6,06	7,14	6,86	3,75	8,40	6,10	6,63	6,56
100	MRSHL	-2,60	-2,23	-2,77	-2,97	-2,80	-2,56	-0,14	-2,37

101	MNDRS	-1,44	-2,81	-1,85	-1,39	-0,45	-2,19	-1,82	2,17
102	OLMK	-1,20	-0,07	-2,59	0,07	-1,30	0,03	-2,72	0,41
103	TIRE	-1,54	-1,37	-2,00	-1,30	-1,43	-1,26	-1,39	-0,70
104	NIBAS	3,68	6,21	3,05	4,56	3,78	2,91	10,49	-3,13
105	NUHCM	2,91	6,35	3,09	9,06	3,34	8,06	5,13	7,32
106	OTKAR	-0,44	1,10	2,88	2,09	3,98	1,33	2,12	2,59
107	OYLUM	1,23	3,81	2,00	4,57	2,02	5,23	1,99	3,92
108	OZBAL	-8,01	-0,97	-8,34	-0,47	-8,33	1,40	-4,50	-1,74
109	PARSN	1,61	2,31	1,05	0,88	0,51	2,32	0,96	3,52
110	PENGD	-3,00	-0,90	-3,34	-1,42	-2,71	3,31	-0,48	4,65
111	PETKM	3,24	2,41	3,17	3,01	2,73	2,82	2,27	4,00
112	PETUN	3,67	5,09	4,99	4,73	5,85	5,07	6,02	6,16
113	PINSU	-3,78	-3,61	-3,99	-3,65	-2,88	-3,34	-2,67	-3,68
114	PNSUT	2,00	2,53	1,48	1,84	1,53	1,60	2,29	1,47
115	PRZMA	7,65	20,13	10,31	10,38	10,53	3,77	11,24	14,72
116	ROYAL	-3,66	-0,62	-1,69	-1,29	-1,88	-0,41	-2,47	0,34
117	RTLAB	19,13	16,33	20,10	23,52	13,09	12,23	9,70	9,71
118	SANFM	2,59	3,66	3,88	4,02	3,21	5,26	16,58	6,14
119	SAMAT	-1,22	-2,06	-1,53	0,17	-1,35	0,36	-4,01	0,74
120	SARKY	0,50	1,12	-0,37	1,46	-0,25	1,71	-0,13	1,11
121	SAYAS	0,75	0,74	1,28	4,38	1,64	0,74	-0,29	3,51
122	SASA	1,30	-1,60	0,34	0,09	0,07	-2,17	-1,41	0,89
123	SEKUR	0,51	0,97	1,02	0,54	1,30	0,66	1,32	0,38
124	SELGD	7,37	7,60	7,48	7,07	7,63	10,40	14,97	15,64
125	SILVR	-2,56	-1,80	-1,01	-1,94	-1,76	-2,37	-1,44	-1,65
126	SKTAS	0,29	-2,76	-1,18	-3,07	-0,77	-0,97	-1,52	-0,44
127	SNPAM	4,72	5,51	5,73	1,70	3,90	2,69	14,48	8,90
128	TATGD	5,45	7,19	5,66	5,72	3,99	3,28	5,45	4,71
129	TMPOL	2,18	0,07	0,65	0,25	0,77	0,31	1,34	0,57
130	TOASO	0,23	0,69	0,12	0,69	0,75	0,43	1,04	0,30
131	TUCLK	0,86	0,92	0,40	0,56	1,50	0,42	-0,59	0,51
132	TUKAS	-0,01	1,84	0,51	1,64	0,00	1,82	1,39	2,51
133	TMSN	1,27	1,93	0,79	2,67	1,57	3,14	2,19	4,69
134	TUPRS	-0,30	-1,93	0,09	-0,53	-0,43	-0,01	-0,82	-0,26
135	PRKAB	0,10	0,84	-0,17	0,98	0,61	0,47	1,35	0,43
136	TTRAK	0,23	1,00	-0,43	2,26	0,65	3,03	2,18	5,00
137	TBORG	-0,12	1,08	0,04	1,74	3,50	4,99	3,79	3,13
138	ULUSE	23,87	7,39	14,81	8,81	14,54	8,61	11,81	3,50
139	ULUUN	-0,32	-0,79	-0,11	-0,50	-0,64	-0,71	-0,68	-0,50
140	USAK	-0,61	-0,13	-0,68	0,86	-0,97	1,39	-0,11	0,85
141	ULKER	6,82	-0,17	2,56	4,30	3,19	3,65	1,00	5,87
142	VESBE	0,18	0,01	-0,28	0,82	-0,31	0,65	-0,20	2,35
143	VESTL	-3,58	-2,55	-3,39	-2,39	-3,39	-2,27	-3,24	-1,12
144	VKING	-4,04	-3,95	-4,92	-4,20	-5,23	-5,11	-4,40	-5,55
145	YATAS	1,57	2,16	2,56	2,01	2,52	3,98	1,99	3,60
146	YUNSA	-1,76	0,09	-1,59	0,07	-2,25	1,14	-1,11	0,78

Source: Authors' Compilation

The companies' determination within the research scope according to the Taffler values in Table 8 for the years 2019-2020 according to the threshold values (Table 3) is given in Table 9. RoFF (Risk of Financial Failure) was used for companies with a risk of financial failure and NRoFF (No Risk of Financial Failure) for companies with no risk of financial failure.

Table 9: Financial Status According to Taffler Model's Values of Manufacturing Companies for 2019-2020

No.	Code	Taffler-Financial Status							
		2019/3	2020/3	2019/6	2020/6	2019/9	2020/9	2019/12	2020/12
1	ACSEL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
2	ADEL	NRoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
3	AFYON	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
4	AKCNS	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
5	ATEKS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
6	AKSA	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	RoFF	NRoFF
7	ALCAR	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
8	ALKA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
9	ALKIM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
10	AEPES	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
11	ARCLK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
12	ARSAN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
13	ASUZU	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
14	AVOD	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	RoFF	RoFF
15	AYGAZ	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
16	BAGFS	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF
17	BAKAB	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
18	BANVT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF
19	BRKSN	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF
20	BLCYT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
21	BNTAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
22	BSOKE	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF
23	BTCIM	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF
24	BRKO	NRoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
25	BRMEN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
26	BRSAN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
27	BOSSA	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF
28	BFREN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
29	BRISA	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF
30	BURCE	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF

31	BURVA	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF
32	BUCIM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
33	COLLA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
34	CELHA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
35	CEMAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
36	CEMTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
37	CMBTN	NRoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
38	CMENT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
39	CIMSA	RoFF	RoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF	RoFF
40	CUSAN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
41	DAGI	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
42	DARDL	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF
43	DMSAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
44	DERIM	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF
45	DESA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
46	DEVA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
47	DIRIT	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
48	DITAS	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF
49	DOBUR	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
50	DGKLB	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
51	DOGUB	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
52	DOKTA	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF
53	DURDO	RoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF
54	DYOBY	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
55	EGEEN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
56	EGGUB	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF
57	EGPRO	RoFF	NRoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF
58	EGESER	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
59	EPLAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
60	EKIZ	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
61	EMKEL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
62	EMNIS	RoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
63	ERBOS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
64	EREGL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
65	ERSU	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
66	FMZIP	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
67	FROTO	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	NRoFF	NRoFF
68	FORMT	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	RoFF	NRoFF
69	FRIGO	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
70	GEDZA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
71	GENTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
72	GEREL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF
73	GOODY	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
74	GOLTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
75	GUBRF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
76	HATEK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
77	HEKTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
78	HURGZ	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
79	IHEVA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
80	IHGZT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
81	ISDMR	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
82	IZDMC	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
83	JANTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
84	KAPLM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
85	KARDMD	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF
86	KARSN	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
87	KRIEK	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	RoFF	NRoFF
88	KARTN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
89	KATMR	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
90	KENT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
91	KERVY	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
92	KLMSN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
93	KONFRT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	RoFF
94	KONYA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
95	KORDS	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
96	KRSTL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
97	KUTPO	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
98	LUKSK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
99	MAKTK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
100	MRSHL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
101	MNDRS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
102	OLMK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
103	TIRE	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
104	NIBAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF
105	NUHCM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
106	OTKAR	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
107	OYLUM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
108	OZBAL	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF
109	PARSN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
110	PENGD	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
111	PETKM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
112	PETUN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
113	PINSU	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF
114	PNSUT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
115	PRZMA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
116	ROYAL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
117	RTLAB	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
118	SANFM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
119	SAMAT	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
120	SARKY	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
121	SAYAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF
122	SASA	NRoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
123	SEKUR	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
124	SELGD	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF

125	SILVR	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
126	SKTAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
127	SNPAM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
128	TATGD	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
129	TMPOL	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
130	TOASO	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF
131	TUCLK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF
132	TUKAS	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF
133	TMSN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
134	TUPRS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
135	PRKAB	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
136	TTRAK	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
137	TBORG	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
138	ULUSE	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
139	ULUUN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
140	USAK	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
141	ULKER	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
142	VESBE	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
143	VESTL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
144	VKING	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
145	YATAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
146	YUNSA	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF
TOTAL	NO RISK OF FAILURE	93	93	97	93	103	107	92	112
	RISK OF FINANCIAL FAILURE	53	53	49	53	43	39	54	34

Source: Authors' Compilation

When Table 9 is examined, a total of 112 companies showed success in the period of 2020/12, when the number of companies with the highest Taffler score was successful. It is seen that the Taffler score shows a total of 54 companies that failed in the 2019/12 period when the success was the lowest. Companies with financially successful Taffler score in all periods include: ACSEL, ATEKS, ALCAR, ALKA, ALKİM, AEFES, ARCLK, ARSAN, AYGAZ, BAKAB, BLCYT, BNTAS, BRSAN, BFREN, BUCİM, COLA, CEMTS, CMENT, CUSAN, DAGI , DMSAS, DEVA, EGEEN, EGESER, EPLAS, ERBOS, EREGL, ERSU, FMZIP, FRIG, GEDZA, GENTS, HATEK, HEKTS, HURGZ, IHEVA, IHGZT, ISDMR, JANTS, KARTN, KENT, KERVTYA, KLMSN, RSTLKON , KUTPO, LUKSK, MAKTK, NUHCM, OTKAR, OYLUM, PARSN, PETKM, PETUN, PNSUT, PRZMA, RTLAB, SANFM, SEKUR, SELGD, SNPAM, TATGD, ULUSE, YATAS. Companies with unsuccessful Taffler scores in all periods include: ASUZU, BRMEN, CELHA, DGKLB, DYOBY, EKİZ, EMKEL, GUBRF, IZDMC, KAPLM, MRSHL, TIRE, SILVR, SKTAS, TUPRS, ULUUN, VESTL, VKING.

According to the formula in Table 3, the Zmijewski model's values of the BIST manufacturing companies within the scope of the research for the years 2019-2020 are given in Table 10.

Table 10: Zmijewski Values of BIST Manufacturing Companies for 2019-2020

No.	Code	Zmijewski							
		2019/3	2020/3	2019/6	2020/6	2019/9	2020/9	2019/12	2020/12
1	ACSEL	-3,49	-3,56	-4,07	-3,78	-4,14	-4,00	-4,29	-4,20
2	ADEL	-0,94	-0,42	-0,46	-0,29	-0,44	-0,03	-0,81	0,10
3	AFYON	-0,34	0,11	-0,11	-2,53	0,10	-2,68	0,33	-2,68
4	AKCNS	-1,21	-1,08	-1,34	-1,30	-1,55	-1,61	-1,72	-1,64
5	ATEKS	-2,57	-2,30	-2,57	-2,33	-2,42	-2,19	-2,36	-2,71
6	AKSA	-0,73	-0,80	-0,73	-0,47	-0,95	-0,63	-0,98	-1,15
7	ALCAR	-2,62	-2,30	-2,27	-2,18	-2,66	-2,34	-2,63	-2,55
8	ALKA	-1,26	-2,28	-2,27	-3,47	-2,46	-3,80	-3,29	-3,98
9	ALKİM	-2,58	-3,00	-3,00	-2,91	-3,30	-3,24	-4,03	-3,88
10	AEFES	-1,55	-1,41	-1,48	-1,46	-1,60	-1,43	-1,70	-1,49
11	ARCLK	-0,19	-0,19	-0,20	-0,32	-0,26	-0,38	-0,31	-0,58
12	ARSAN	-2,19	-2,41	-2,62	-2,58	-2,83	-2,98	-2,50	-3,62
13	ASUZU	-0,39	-0,35	-0,32	-0,28	-0,49	-0,17	-0,69	-0,31
14	AVOD	-0,95	-0,44	-1,07	-0,34	-0,92	-0,03	-0,76	-0,21
15	AYGAZ	-1,00	-0,99	-1,36	-0,72	-1,47	-0,67	-1,70	-1,02
16	BAGFS	-0,08	0,08	-0,13	0,27	-0,58	0,73	-0,35	0,34
17	BAKAB	-0,95	-0,95	-0,84	-0,76	-1,09	-0,86	-1,11	-1,13
18	BANVT	-1,08	-1,22	-1,57	-1,03	-1,62	-0,93	-1,89	-0,39
19	BRKSN	-0,98	-0,76	-0,81	-0,72	-0,72	-1,01	-0,69	-1,34
20	BLCYT	-2,27	-3,71	-2,61	-3,57	-3,37	-3,92	-4,25	-3,97
21	BNTAS	-3,50	-3,63	-3,61	-3,65	-3,69	-3,72	-3,95	-3,84
22	BSOKE	-0,17	0,94	0,14	1,51	0,12	2,89	0,85	2,83
23	BTCİM	-0,57	0,13	-0,43	0,49	-0,46	1,33	-0,01	1,26
24	BRKO	-2,13	-1,99	-2,18	-1,80	-1,87	-1,96	-1,67	-2,32

25	BRMEN	-0,50	1,56	-0,11	2,25	0,28	2,55	0,43	-2,58
26	BRSAN	-1,05	-1,06	-1,23	-1,15	-1,15	-1,00	-1,01	-1,10
27	BOSSA	0,34	0,08	0,28	0,26	-0,10	0,31	-0,33	-0,28
28	BFREN	-2,94	-2,73	-2,89	-1,96	-3,24	-2,50	-3,26	-2,17
29	BRISA	0,35	0,39	0,42	0,38	0,37	0,02	0,36	-0,33
30	BURCE	-0,59	-1,37	-0,56	-1,03	-0,48	-1,37	-1,42	-1,35
31	BURVA	-0,30	-0,16	-0,34	0,32	-0,29	0,13	-0,57	-0,46
32	BUCIM	-3,03	-3,00	-3,12	-2,80	-3,11	-2,74	-2,99	-3,13
33	CCOLA	1,44	1,41	1,32	1,30	1,17	1,14	1,17	1,15
34	CELHA	0,41	0,82	0,49	1,10	0,48	1,26	0,83	1,04
35	CEMAS	-0,97	-3,02	-1,18	-3,75	-1,38	-4,00	-0,45	-3,51
36	CEMTS	-3,26	-3,46	-3,76	-3,85	-3,79	-3,65	-3,91	-4,33
37	CMBTN	-1,31	0,00	-1,07	0,21	-0,86	0,67	-0,46	0,69
38	CMENT	-2,81	-2,27	-2,64	-2,02	-2,51	-1,88	-2,42	-2,16
39	CIMSA	-0,88	-0,45	-0,82	-0,95	-0,88	-1,04	-0,85	-0,79
40	CUSAN	-1,25	-1,66	-1,48	-1,59	-1,79	-1,54	-1,79	-1,66
41	DAGI	-1,20	-1,07	-1,52	-1,20	-1,63	-1,48	-1,49	-1,86
42	DARDL	18,74	4,92	18,98	0,19	16,44	-0,06	10,55	-0,20
43	DMSAS	-0,93	-0,71	-0,85	-0,54	-1,02	-0,59	-1,17	-0,90
44	DERIM	0,58	0,13	0,75	0,13	0,81	0,18	0,78	0,22
45	DESA	0,15	0,03	0,09	0,17	-0,10	-0,03	-0,25	-0,12
46	DEVA	-1,35	-1,72	-1,60	-1,91	-1,79	-2,43	-1,97	-2,56
47	DIRIT	0,42	0,21	-0,73	-0,19	2,39	0,11	4,12	1,85
48	DITAS	-0,33	0,06	-0,48	0,13	-0,59	-0,08	-0,41	-0,32
49	DOBUR	-0,80	-0,56	-0,83	-0,26	-0,60	-0,38	-0,50	-0,21
50	DGKLB	1,08	1,51	1,25	1,69	1,21	1,59	1,73	1,15
51	DOGUB	-0,51	-2,66	-2,82	-2,36	-2,80	-2,32	-2,66	-2,01
52	DOKTA	0,71	1,13	0,51	1,15	0,45	1,04	0,79	0,65
53	DURDO	-0,06	0,30	-0,12	0,52	-0,25	0,90	-0,23	0,39
54	DYOBY	0,83	0,80	0,72	0,53	0,69	0,22	0,35	-0,47
55	EGEEN	-3,32	-3,08	-3,46	-2,85	-3,83	-3,32	-4,02	-3,59
56	EGGUB	-1,55	-0,79	-1,70	-1,16	-2,25	-1,78	-1,22	-1,94
57	EGPRO	-0,37	-0,58	-0,46	-0,49	-0,71	-0,39	-0,69	-1,25
58	EGESER	-2,79	-2,20	-2,61	-2,11	-2,50	-2,37	-2,68	-2,85
59	EPLAS	-0,62	-1,93	-0,77	-2,07	-1,20	-2,24	-0,90	-2,76
60	EKIZ	0,89	0,33	1,19	0,22	1,08	0,81	-0,02	0,16
61	EMKEL	0,67	0,18	0,33	0,26	0,36	0,48	0,27	0,41
62	EMNIS	3,25	5,09	3,46	4,79	4,29	4,46	5,10	-0,11
63	ERBOS	-2,57	-2,38	-2,55	-2,72	-2,85	-2,97	-2,28	-3,40
64	EREGL	-2,15	-2,46	-2,69	-2,45	-2,78	-2,56	-2,74	-2,90
65	ERSU	-2,85	-2,95	-2,62	-3,07	-2,82	-3,00	-2,82	-2,85
66	FMZIP	-4,34	-4,31	-5,08	-4,68	-5,41	-5,19	-5,83	-5,59
67	FROTO	-0,05	-0,13	-0,32	-0,12	-0,73	-0,22	-0,74	-1,01
68	FORMT	-1,32	-0,48	-1,23	-0,14	-1,35	-0,45	-0,26	-0,55
69	FRIGO	-0,56	-0,82	-1,14	-1,57	-1,70	-1,76	-1,19	-1,11
70	GEDZA	-2,76	-2,72	-2,76	-3,12	-3,14	-2,92	-3,05	-3,08
71	GENTS	-2,68	-2,82	-2,58	-2,72	-2,73	-2,80	-2,87	-2,81
72	GEREL	-1,62	-0,83	-1,03	-0,97	-0,70	-0,83	-0,34	-0,77
73	GOODY	-0,59	-1,01	-0,78	-1,88	-0,87	-1,94	-2,60	-2,08
74	GOLTS	-0,73	-0,70	-0,74	-0,63	-0,84	-0,42	-0,91	-0,51
75	GUBRF	0,00	0,20	0,14	0,06	0,16	0,14	0,46	-0,76
76	HATEK	-2,38	-2,61	-1,96	-2,47	-2,06	-2,34	-3,02	-2,60
77	HEKTS	-0,70	-1,32	-0,82	-0,88	-0,80	-0,92	-1,48	-0,96
78	HURGZ	-2,70	-2,59	-2,58	-2,34	-2,33	-2,16	-2,52	-2,01
79	IHEVA	-2,77	-3,20	-2,65	-3,12	-3,59	-3,55	-3,76	-3,79
80	IHGZT	-3,22	-3,06	-3,07	-2,73	-3,08	-2,62	-3,58	-2,79
81	ISDMR	-2,13	-2,91	-3,15	-2,92	-3,35	-2,98	-3,32	-3,41
82	IZDMC	1,49	1,49	1,09	2,17	1,16	2,67	1,55	1,33
83	JANTS	-2,25	-1,92	-2,70	-2,44	-3,01	-3,00	-3,32	-3,63
84	KAPLM	-0,49	-0,52	-0,35	-0,38	-0,07	-0,32	-0,17	-0,26
85	KARDMD	-1,28	-0,83	-1,39	-0,53	-1,34	-0,39	-1,08	-0,67
86	KARSN	0,77	-0,04	0,63	0,01	0,17	0,11	-0,10	-0,14
87	KRTEK	0,30	0,56	0,41	0,56	0,15	0,38	0,41	-0,27
88	KARTN	-3,56	-3,41	-3,70	-3,55	-3,83	-3,92	-4,01	-4,18
89	KATMR	0,94	0,90	0,93	1,01	0,56	1,04	0,78	0,34
90	KENT	-1,50	-1,48	-1,43	-1,62	-1,47	-2,68	-1,75	-2,77
91	KERVT	-0,13	-0,69	-0,16	-0,62	-0,25	-0,67	-0,83	-1,46
92	KLMSN	-0,08	0,18	-0,49	0,18	-0,77	0,22	-0,52	-0,04
93	KONFRT	-2,02	-1,15	-2,77	-1,64	-2,82	-1,29	-1,41	-1,04
94	KONYA	-3,43	-3,31	-3,35	-3,06	-3,47	-3,34	-3,47	-3,27
95	KORDS	-2,20	-2,32	-2,14	-1,39	-2,58	-2,33	-2,44	-2,50
96	KRSTL	-2,89	-2,67	-2,60	-2,70	-2,55	-2,57	-2,75	-3,15
97	KUTPO	-2,62	-2,66	-2,60	-2,83	-2,96	-2,75	-3,10	-2,94
98	LUKSK	-1,57	-1,49	-1,58	-1,14	-1,86	-0,79	-1,85	-1,59
99	MAKTK	-2,27	-2,55	-2,58	-2,14	-2,83	-2,29	-2,88	-2,47
100	MRSHL	0,44	0,31	0,42	0,42	0,30	0,38	-0,45	-5,22
101	MNDRS	0,55	1,27	0,76	1,52	0,45	1,90	0,79	0,04
102	OLMK	-0,40	-0,97	0,13	-0,72	0,04	-0,73	0,32	-0,71
103	TIRE	-0,45	-0,50	-0,21	-0,43	-0,27	-0,59	-0,34	-0,61
104	NIBAS	-2,88	-3,26	-2,44	-3,21	-2,57	-3,01	-3,42	-2,75
105	NUHCM	-2,07	-2,65	-1,99	-3,09	-2,32	-3,40	-2,71	-3,70
106	OTKAR	0,81	0,60	0,19	0,26	-0,26	-0,02	-0,53	-0,55
107	OYLUM	-1,08	-1,83	-1,43	-1,70	-1,45	-1,86	-1,20	-1,92
108	OZBAL	2,08	-0,06	2,47	-0,37	2,71	-0,95	1,98	-0,63
109	PARSN	-0,73	-1,11	-0,83	-0,97	-0,71	-1,01	-0,97	-1,34
110	PENGD	0,61	-1,11	0,89	-0,72	0,70	-1,99	-1,12	-2,42
111	PETKM	-0,45	-0,41	-0,49	-0,36	-0,55	-0,24	-0,45	-0,74
112	PETUN	-2,65	-2,85	-2,96	-3,25	-2,76	-2,78	-2,70	-3,02
113	PINSU	0,56	1,02	0,86	1,29	0,91	1,24	0,97	0,72
114	PNSUT	-1,80	-1,77	-1,81	-1,82	-1,86	-1,82	-2,01	-1,85
115	PRZMA	-3,48	-3,72	-3,36	-3,60	-3,34	-2,35	-3,56	-3,53
116	ROYAL	1,83	1,30	1,91	1,40	2,05	1,40	2,35	1,21
117	RTLAB	-3,93	-3,36	-4,16	-3,61	-4,22	-3,61	-3,85	-3,41
118	SANFM	0,30	0,19	0,34	0,30	0,32	0,24	0,04	-0,02

119	SAMAT	0,09	0,62	0,19	-0,37	0,39	-0,39	1,50	-0,78
120	SARKY	-0,48	-0,20	-0,33	-0,21	-0,42	-0,30	-0,31	-0,54
121	SAYAS	-0,57	-0,43	-0,63	-1,36	-0,83	-0,36	-0,53	-0,51
122	SASA	-1,10	-0,42	-1,09	-0,40	-1,28	0,05	-1,11	-0,24
123	SEKUR	0,01	-0,79	-0,73	-0,65	-1,13	-0,72	-0,87	-0,70
124	SELGD	-2,66	-2,94	-2,65	-3,00	-2,70	-3,23	-3,37	-3,64
125	SILVR	-0,07	0,32	-0,11	0,37	-0,02	0,48	0,33	0,21
126	SKTAS	0,56	1,32	0,74	1,51	0,78	0,77	0,93	0,39
127	SNPAM	-2,27	-2,75	-2,98	-2,64	-3,13	-2,42	-3,44	-2,85
128	TATGD	-2,00	-1,78	-1,75	-1,74	-1,69	-1,43	-2,00	-2,24
129	TMPOL	-0,47	-0,43	-0,57	-0,44	-0,90	-0,34	-1,10	-0,44
130	TOASO	-0,09	-0,15	-0,33	-0,24	-0,85	-0,03	-1,03	-0,30
131	TUCLK	-0,82	-0,62	-0,77	-0,47	-0,91	-0,39	-0,78	-0,52
132	TUKAS	-0,39	-0,96	-0,70	-1,09	-0,85	-0,86	-1,17	-1,56
133	TMSN	-1,62	-1,86	-1,46	-1,58	-1,68	-1,70	-1,89	-2,02
134	TUPRS	0,20	0,42	0,06	0,56	0,06	0,62	0,03	0,52
135	PRKAB	-0,69	-0,91	-0,65	-1,04	-0,97	-0,86	-1,15	-0,93
136	TTRAK	0,30	0,09	0,27	-0,16	0,02	-0,15	-0,09	-0,38
137	TBORG	-0,73	-1,32	-0,91	-1,33	-1,76	-2,06	-2,31	-2,30
138	ULUSE	-3,83	-2,61	-3,65	-2,74	-3,68	-2,87	-3,67	-2,11
139	ULUUN	0,15	0,22	-0,11	0,14	0,04	0,19	0,11	0,00
140	USAK	-0,60	-0,29	-0,59	-0,73	-0,46	-1,02	-0,40	-1,04
141	ULKER	-0,74	-0,66	-0,86	-0,90	-0,97	-0,91	-1,11	-0,89
142	VESBE	-0,91	-0,79	-0,72	-1,17	-1,05	-1,04	-1,17	-1,65
143	VESTL	0,46	0,24	0,34	0,06	0,30	0,03	0,24	-0,44
144	VKING	1,05	1,54	1,42	1,72	1,74	2,15	1,87	2,25
145	YATAS	-0,81	-0,99	-1,12	-0,85	-1,37	-1,04	-1,38	-1,26
146	YUNSA	0,01	-0,21	-0,06	-0,22	0,13	-0,45	-0,19	-0,46

Source: Authors' Compilation

The companies' determination within the research scope according to the Zmijewski values in Table 10 for the years 2019-2020 according to the threshold values (Table 3) is given in Table 11. RoFF (Risk of Financial Failure) was used for companies with a risk of financial failure and NRoFF (No Risk of Financial Failure) for companies with no risk of financial failure.

Table 11: Financial Status According to Zmijewski Model's Values of Manufacturing Companies for 2019-2020

No.	Code	Zmijewski-Financial Status								
		2019/3	2020/3	2019/6	2020/6	2019/9	2020/9	2019/12	2020/12	
1	ACSEL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
2	ADEL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	
3	AFYON	NRoFF	RoFF	NRoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	
4	AKCNS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
5	ATEKS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
6	AKSA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
7	ALCAR	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
8	ALKA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
9	ALKIM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
10	AEFES	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
11	ARCLK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
12	ARSAN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
13	ASUZU	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
14	AVOD	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
15	AYGAZ	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
16	BAGFS	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	
17	BAKAB	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
18	BANVT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
19	BRKSN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
20	BLCYT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
21	BNTAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
22	BSOKE	NRoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	
23	BTCIM	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	
24	BRKO	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
25	BRMEN	NRoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	
26	BRSAN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
27	BOSSA	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF	
28	BFREN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
29	BRISA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	
30	BURCE	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
31	BURVA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
32	BUCIM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
33	CCOLA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	
34	CELHA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	
35	CEMAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
36	CEMTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
37	CMBTN	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	
38	CMENT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
39	CIMSA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
40	CUSAN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
41	DAGI	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
42	DARDL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	
43	DMSAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	
44	DERIM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	
45	DESA	RoFF	RoFF	RoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	
46	DEVA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	

47	DIRIT	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	RoFF	RoFF
48	DITAS	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
49	DOBUR	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
50	DGKLB	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
51	DOGUB	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
52	DOKTA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
53	DURDO	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF
54	DYOBY	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
55	EGEEN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
56	EGGUB	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
57	EGPRO	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
58	EGESER	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
59	EPLAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
60	EKIZ	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
61	EMKEL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
62	EMNIS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
63	ERBOS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
64	EREGL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
65	ERSU	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
66	FMZIP	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
67	FROTO	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
68	FORMT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
69	FRIGO	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
70	GEDZA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
71	GENTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
72	GEREL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
73	GOODY	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
74	GOLTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
75	GUBRF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
76	HATEK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
77	HEKTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
78	HURGZ	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
79	IHEVA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
80	IHGZT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
81	ISDMR	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
82	IZDMC	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
83	JANTS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
84	KAPLM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
85	KARDMD	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
86	KARSN	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	NRoFF
87	KRIEK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
88	KARTN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
89	KATMR	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
90	KENT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
91	KERVN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
92	KLMSN	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF
93	KONFRT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
94	KONYA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
95	KORDS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
96	KRSTL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
97	KUITPO	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
98	LUSK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
99	MAKTK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
100	MRSHL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	NRoFF
101	MNDRS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
102	OLMK	NRoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
103	TIRE	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
104	NIBAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
105	NUHCM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
106	OTKAR	RoFF	RoFF	RoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF
107	OYLUM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
108	OZBAL	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
109	PARSN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
110	PENG	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF
111	PETKM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
112	PETUN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
113	PINSU	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
114	PNSUT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
115	PRZMA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
116	ROYAL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
117	RTLAB	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
118	SANFM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
119	SAMAT	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF
120	SARKY	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
121	SAYAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
122	SASA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
123	SEKUR	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
124	SELGD	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
125	SILVR	NRoFF	RoFF	NRoFF	RoFF	NRoFF	RoFF	RoFF	RoFF
126	SKTAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
127	SNPAM	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
128	TAIGD	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
129	TPPOL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
130	TOASO	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
131	TUCLK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
132	TUKAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
133	TMSN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
134	TUPRS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
135	PRKAB	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
136	TTRAK	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF
137	TBORG	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
138	ULUSE	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
139	ULUUN	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
140	USAK	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF

141	ULKER	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
142	VESBE	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
143	VESTL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
144	VKING	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
145	YATAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
146	YUNSA	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
TOTAL	NO RISK OF FAILURE	110	105	112	108	111	110	116	123
	RISK OF FINANCIAL FAILURE	36	41	34	38	35	36	30	23

Source: Authors' Compilation

According to Table 11, the period with the highest number of successful companies with a Zmijewski score is 2020/12 with a total of 123 companies. The period with the highest number of unsuccessful companies is 2020/3. The manufacturing companies that failed in all periods are: COLLA, CELHA, DERİM, DGKLB, DOKTA, IZDMC, KATMR, MNDRS, PINSU, ROYAL, SKTAS, TUPRS, VKING.

Those with successful financial scores in all periods include: ACSEL, AKCNS, ATEKS, AKSA, ALCAR, ALKA, ALKİM, AEFES, ARCLK, ARSAN, ASUZU, AVOD, AYGAZ, BAKAB, BANVT, BRKSN, BLCYT, BNTAS, BRKO, BRSAN, BFREN, BURCE, BURVA, BUCİM, CEMAS, CEMTS, CMENT, CIMSAS, CUSAN, DAGI, DMSAS, DEVA, DOBUR, DOGUB, EGEEN, EGGUB, EGPRO, EGESER, EPLAS, ERBOS, EREGL, ERSU, FMZIP, FROTO, FORMT, FRIG, GED, GENTS, GEREL, GOODY, GOLTS, HATEK, HEKTS, HURGZ, IHEVA, IHGZT, ISDMR, JANTS, KAPLM, KARDMD, KARTN, KENT, KERVT, KONFRT, KONYA, KORDS, KRSTL, KUTPO, LUKSK, MAKTK, TIRE, NIBAS, NUHCM, OYLUM, PARSN, PETKM, YATAS PETUN, PNSUT, PRZMA, RTLAB, SARKY, SAYDAS, SARKY, SAYDAS, TATGD, TMPOL, TOASO, TUCKL, TUKAS, TMSN, PRKAB, TBORG, ULUSE, USAK, ULKER, VESBE.

Comparative information on the financial status of the BIST manufacturing companies for the periods 2019/12 and 2020/12 for financial failure models within the scope of the research is given in Table 12.

Table 12: Evaluation of Financial Failure Models Used in the Research for the Periods of 2019/12 and 2020/12

No.	Code	2019/12				2020/12			
		Altman	Springate	Taffler	Zmijewski	Altman	Springate	Taffler	Zmijewski
1	ACSEL	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
2	ADEL	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	RoFF	RoFF
3	AFYON	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF
4	AKCNS	RoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
5	ATEKS	RoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
6	AKSA	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
7	ALCAR	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
8	ALKA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
9	ALKİM	UN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
10	AEFES	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
11	ARCLK	RoFF	RoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF
12	ARSAN	RoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
13	ASUZU	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	NRoFF
14	AVOD	RoFF	RoFF	RoFF	NRoFF	UN	RoFF	RoFF	NRoFF
15	AYGAZ	UN	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
16	BAGFS	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	RoFF
17	BAKAB	RoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
18	BANVT	UN	RoFF	NRoFF	NRoFF	UN	RoFF	RoFF	NRoFF
19	BRKSN	RoFF	RoFF	NRoFF	NRoFF	UN	NRoFF	NRoFF	NRoFF
20	BLCYT	UN	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
21	BNTAS	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
22	BSORE	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
23	BTCİM	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF
24	BRKO	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
25	BRMEN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
26	BRSAN	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
27	BOSSA	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	RoFF	NRoFF
28	BFREN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
29	BRİSA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	NRoFF
30	BURCE	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
31	BURVA	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF
32	BUCİM	UN	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
33	COLLA	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
34	CELHA	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
35	CEMAS	RoFF	RoFF	RoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF

36	CEMTS	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
37	CMBTN	RoFF	RoFF	RoFF	NRoFF	UN	RoFF	RoFF	RoFF
38	CMENT	UN	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
39	CIMSA	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	NRoFF
40	CUSAN	RoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
41	DAGI	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
42	DARDL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
43	DMSAS	RoFF	RoFF	NRoFF	NRoFF	UN	NRoFF	NRoFF	NRoFF
44	DERIM	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
45	DESA	RoFF	NRoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
46	DEVA	UN	RoFF	NRoFF	NRoFF	UN	NRoFF	NRoFF	NRoFF
47	DIRIT	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
48	DITAS	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF
49	DOBUR	UN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
50	DGKLB	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
51	DOGUB	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
52	DOKTA	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
53	DURDO	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	RoFF
54	DYOBY	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
55	EGEEN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
56	EGGUB	UN	RoFF	RoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
57	EGPRO	RoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
58	EGESER	UN	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
59	EPLAS	UN	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
60	EKIZ	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	RoFF	RoFF
61	EMKEL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
62	EMNIS	RoFF	RoFF	NRoFF	RoFF	UN	NRoFF	NRoFF	NRoFF
63	ERBOS	UN	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
64	EREGL	RoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
65	ERSU	UN	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
66	FMZIP	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
67	FROTO	UN	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
68	FORMT	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
69	FRIGO	RoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
70	GEDZA	UN	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
71	GENTS	UN	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
72	GEREL	RoFF	RoFF	RoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
73	GOODY	UN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
74	GOLTS	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
75	GUBRF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF
76	HATEK	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
77	HEKTS	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
78	HURGZ	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
79	IHEVA	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
80	IHGZT	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
81	ISDMR	UN	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
82	IZDMC	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
83	JANTS	RoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
84	KAPLM	RoFF	RoFF	RoFF	NRoFF	UN	RoFF	RoFF	NRoFF
85	KARDMD	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
86	KARSN	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
87	KRTEK	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	NRoFF
88	KARTIN	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
89	KATMR	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	RoFF	NRoFF
90	KENT	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
91	KERVT	RoFF	RoFF	NRoFF	NRoFF	UN	NRoFF	NRoFF	NRoFF
92	KLMSN	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
93	KONFKT	RoFF	RoFF	RoFF	NRoFF	UN	RoFF	RoFF	NRoFF
94	KONYA	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
95	KORDS	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
96	KRSTL	NRoFF	RoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF	NRoFF
97	KUTPO	UN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
98	LUKSK	RoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
99	MAKTK	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
100	MRSHL	UN	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF
101	MNDRS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
102	OLMK	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF
103	TIRE	RoFF	RoFF	RoFF	NRoFF	UN	RoFF	RoFF	NRoFF
104	NIBAS	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF
105	NUHCM	UN	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
106	OTKAR	UN	NRoFF	NRoFF	NRoFF	UN	NRoFF	NRoFF	NRoFF
107	OYLUM	RoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
108	OZBAL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
109	PARSN	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
110	PENGD	RoFF	RoFF	RoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
111	PETKM	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
112	PETUN	UN	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
113	PINSU	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
114	PNSUT	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
115	PRZMA	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
116	ROYAL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF
117	RTLAB	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
118	SANFM	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
119	SAMAT	RoFF	RoFF	RoFF	RoFF	NRoFF	RoFF	NRoFF	NRoFF
120	SARKY	RoFF	RoFF	RoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
121	SAYAS	RoFF	RoFF	RoFF	NRoFF	UN	NRoFF	NRoFF	NRoFF
122	SASA	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
123	SEKUR	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
124	SELGD	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
125	SILVR	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
126	SKTAS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
127	SNPAM	NRoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
128	TATGD	UN	NRoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
129	TMPOL	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF

130	TOASO	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	RoFF	NRoFF
131	TUCLK	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
132	TUKAS	NRoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
133	TMSN	RoFF	RoFF	NRoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
134	TUPRS	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
135	PRKAB	RoFF	RoFF	NRoFF	NRoFF	NRoFF	RoFF	NRoFF	NRoFF
136	TTRAK	UN	RoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
137	TBORG	UN	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
138	ULUSE	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF	NRoFF
139	ULUUN	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
140	USAK	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
141	ULKER	RoFF	RoFF	NRoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
142	VESBE	RoFF	RoFF	RoFF	NRoFF	UN	RoFF	NRoFF	NRoFF
143	VESTL	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	NRoFF
144	VKING	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF	RoFF
145	YATAS	UN	NRoFF	NRoFF	NRoFF	UN	NRoFF	NRoFF	NRoFF
146	YUNSA	RoFF	RoFF	RoFF	NRoFF	RoFF	RoFF	NRoFF	NRoFF
	NO RISK OF FAILURE	23	24	92	114	50	37	110	124
TOTAL	RISK OF FINANCIAL FAILURE	96	122	54	32	65	109	36	22
	UNCERTAIN	27	-	-	-	31	-	-	-

Source: Authors' Compilation

According to the data in Table 12, it is seen that the BIST manufacturing companies with successful Altman Z, Springate, Taffler, Zmijewski scores in the quarterly periods of 2019 and 2020 are: ACSEL, ALCAR, ALKA, BFREN, EGEEN, FMZIP, IHEVA, ULUSE. BIST companies with unsuccessful scores were: BSOKE, CELHA, DERİM, DIRIT, DGKLB, EMKEL, IZDMC, PINSU, SILVR, SKTAS, TUPRS, VKING.

5. CONCLUSION

This study aimed to analyze the financial failure risk of BIST manufacturing companies in the COVID-19 period by comparing 2019 and 2020 with four different financial failure models. Analysis was carried out with the most used Altman (1968), Springate (1978), Taffler (1983) and Zmijewski (1984) financial failure models in the literature, with quarterly data from 146 companies.

The analysis results show that while the risk of financial failure decreased in all four models, the number of financially successful companies increased when the 2019 and 2020 quarterly data were compared. This can be interpreted as meaning that the BIST manufacturing industry companies are less affected by the COVID-19 process when comparing 2019 and 2020. While the risk of financial failure decreased in the quarter of 2019, the number of financially successful companies increased. This increase is also valid for the quarters of 2020. While the number of financially failed companies in the first quarter of 2019 and 2020 decreased in Altman and Zmijewski models, there was no change in the number of financially successful or unsuccessful companies in Springate and Taffler models. The difference between these models in the first quarter is not found in the following quarters. In the Zmijewski and Taffler models, financially successful companies by quarter are higher than in the Altman and Springate models.

On the other hand, in Altman and Springate models, the number of companies at risk of financial failure is considerably higher than in Zmijewski and Taffler models. This may be due to the fact that the variables in the models are similar to each other. According to the Springate model, the number of

companies at risk of financial failure is higher than the number of companies calculated according to the Altman model. It can be explained by the Altman model using market value, total debt, and retained earnings as variables. As a result of the calculations made according to the four financial failure models, some companies are at risk of financial failure in all quarters. Companies at risk of financial failure in all quarters in both the Altman and Springate models are; ADEL, AKSA, AEFES, BAGFS, BTCIM, BRKO, BRMEN, BRSAN, BOSSA, BRISA, BURCE, CELHA, CIMSA, DAGI, DARDNL, DERİM, DIRIT, DGKLB, DOKTA, DURDO, DYOBY, EKİZ, EMKEL, IZDMC, KAR KARSN, KLMSN, KORDS, MNDRS, PINSU, PNSUT, ROYAL, SANFM, TOASO, TUCLK, TUPRS, ULUUN, USAK, VESTL, VKING, YUNSA. Companies at risk of financial failure in all quarters in the Altman, Springate, and Taffler models include CELHA, DERİM, DGKLB, DOKTA, IZDMC, MNDRS, PINSU, TUPRS, VKING.

As a result of these two (Altman and Springate) or three models (Altman, Springate and Taffler), a detailed study can be made about the financial ratios of companies with financial failure risk in all quarters. Therefore, a more robust model can be proposed for the risk of financial failure. While this will benefit companies in shaping their financial policies, it will enable them to reach more reliable results in their decision making. In the literature, financially unsuccessful and financially successful companies are examined, while financially unsuccessful companies are bankrupt. In this study, one notes that companies that have not gone bankrupt may also risk financial failure. For this reason, companies with and without the risk of financial failure can be identified with sector-specific financial ratios, and even different thresholds can be found.

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