Chapter 18

The Impact of Financial Soundness Indicators on Firm Value: Evidence from BIST Industrial Firms

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Abstract

This study examines the effects of financial soundness indicators on the market values of firms listed on Borsa Istanbul using quarterly data from 2019–2024. The analysis is based on a large panel dataset consisting of 6,821 observations from 399 firms. The main purpose of the study is to investigate how the lagged Piotroski F-Score and Altman Z-Score influence firm market values and to reveal investors' decision-making behavior based on financial information. In the model, market value is used as the dependent variable, while lagged F-Score, lagged Z-Score, firm size, and leverage ratio serve as independent variables. Given the presence of cross-sectional dependence, autocorrelation, and heteroskedasticity in the panel structure, a static panel model was estimated using Driscoll–Kraay robust standard errors. The findings indicate that both the lagged F-Score and the lagged Z-Score have positive and significant effects on market value. Firms that are financially strong and distant from bankruptcy risk were found to have higher market values. These results show that, during the period under review, investors in BIST Industrial companies prioritized financial soundness rather than speculation. The study's original contribution lies in the simultaneous examination of two financial soundness indicators and the analysis of investor behavior within this framework.

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Introduction

Individual investment decisions within financial markets are shaped by uncertainties across political, economic, social, and psychological factors in the financial market (Yalnız and Candan, 2019: 52). In traditional investment strategies, investment decisions are made by balancing risk and return. While risk and return form the fundamental dimensions of investment decisions, social and economic changes in the 20th century have created new opportunities and unique risks. Since the 1970s, liberalization, transparency, and technological developments have transcended economic boundaries, lending an international character to investor profiles. Inter-country integration and interdependence have increased; therefore, a crisis in one market directly affects other economies (İltaş and Güzel, 2021: 412). Financial analysis conducted in constantly changing financial markets serves as a critical tool for economic and strategic decisions beyond measuring business performance (Erdoğan, 2025: 3). Macroeconomic variables, political structure, and the general economic situation cause fluctuations in prices, returns, and trading volume, while the distribution of capital and risk is directly proportional to the functional operation of the markets. Investors are divided into risk-takers and risk-averse based on their perception of risk; stock market fluctuations present opportunities for risk-takers, while traditional instruments are preferred by those who avoid risk. Analysis of this interaction guides investors as well as policymakers and companies (Yılmaz and Kılıç, 2022: 2). In this complex decision-making environment, various scoring models have been developed in the literature to enable investors to make the right decisions and companies to accurately assess their financial soundness. One such model, the Piotroski F-Score model, is widely used in both academic literature and the business world.

In countries like Türkiye, where stock prices are highly volatile and investments are often driven by speculative price movements, it is important to make investment decisions with an awareness of firms' financial health. Companies listed on Borsa Istanbul present their financial activities to stakeholders on a quarterly basis. However, investors' ability to analyze these statements and derive meaningful conclusions depends on their level of financial literacy, and this can be quite challenging. At this point, Joseph Piotroski introduced the Piotroski F-Score in 2000, a measure widely known in the literature that evaluates the financial health of companies and allows them to be compared with one another (Gülcan and Sakınç, 2025: 1238). The model developed by Piotroski converts complex financial data into a simple score ranging from 0 to 9. It is based on three main financial categories: profitability, leverage/liquidity, and operational efficiency. For value investors in particular,

this score makes it much easier to compare companies within a sector and distinguish financially "strong" firms from "weak" ones. According to Erdinç (2025), this method is highly effective in identifying companies that analysts may overlook or that the market may misprice. Today, data providers such as Finnet also calculate and publish this score. The logic is straightforward: firms scoring 8–9 are considered financially strong, while scores between 0–2 indicate a risk of financial distress.

While the Piotroski F-Score is used to assess financial soundness, another scoring method—the Altman Z-Score—is used to evaluate firms' financial risk. The Altman Z-Score aims to estimate bankruptcy risk and identify weak firms within a sector.

Companies that can effectively utilize their resources and accurately analyze their financial performance in order to make sound decisions are successful in sustaining their operations in a competitive environment. There are numerous financial performance analysis methods in the literature, and the Altman Z-Score is one of the important methods for measuring a company's stability and bankruptcy risk (Gül and Yılmaz, 2023: 203). Developed by Edward I. Altman in 1968 and referred to in the literature as the Altman Z-Score Model, this method is a widely accepted financial success and bankruptcy risk measurement model. The model consists of a score created by grouping 22 financial ratios under 5 basic ratios using discriminant analysis (Tutar and Medetoğlu, 2022: 18). Initially applied to manufacturing companies, this method has been modified over time and is now also used to measure the bankruptcy risk of different sectors.

In this study, the Piotroski F-Score, which indicates the level of financial strength of companies, and the Altman Z-Score, which indicates their financial risk (risk of bankruptcy), were used to analyze the effects of these variables on the market values of companies. In this context, the relationship between the financial soundness and bankruptcy risk of companies listed on the BIST Industrial Index and their market values was examined. Given the limited number of studies in the Turkish literature that jointly address the impact of these two scoring models on market value, this research aims to make an original contribution to the literature. The study was conducted using quarterly data from 2019-2024 and panel data analysis methods.

Overview of the Industrial Sector

The industrial sector is a significant sector that has transformed areas such as communications, electricity, information technology, and space through industrial revolutions that began in England and developed under the leadership

of Germany and the United States, forming the foundations of growth and competition to this day. Today, technological and industrial revolutions are the most fundamental factors determining countries' international competitiveness and level of economic development (Petek and Şanlı: 2018: 186). Türkiye's industrialization process has evolved from state-controlled and planned periods to an export-oriented, open model after 1980. With this structural transformation, the share of agriculture in the economy has decreased, while the weight of the industrial and service sectors has increased (Polat, 2011: 25-27).

In the 1980s, Türkiye abandoned its import substitution economic model and began to integrate with the world by shifting to an export-oriented growth and economic model. Tourism and textiles were chosen as the driving forces of the Turkish economy during this period. Later, with a major industrial push, large and integrated factories and production sites began to be established. Figure 1 shows the share of industrial production in Gross Domestic Product (GDP) over the years. The share, which was above 25% in 1995, fluctuated over the years and fell below 20% in 2022. Decreases in the share of industrial production occurred, particularly with the increase in the shares of the finance and service sectors in GDP.

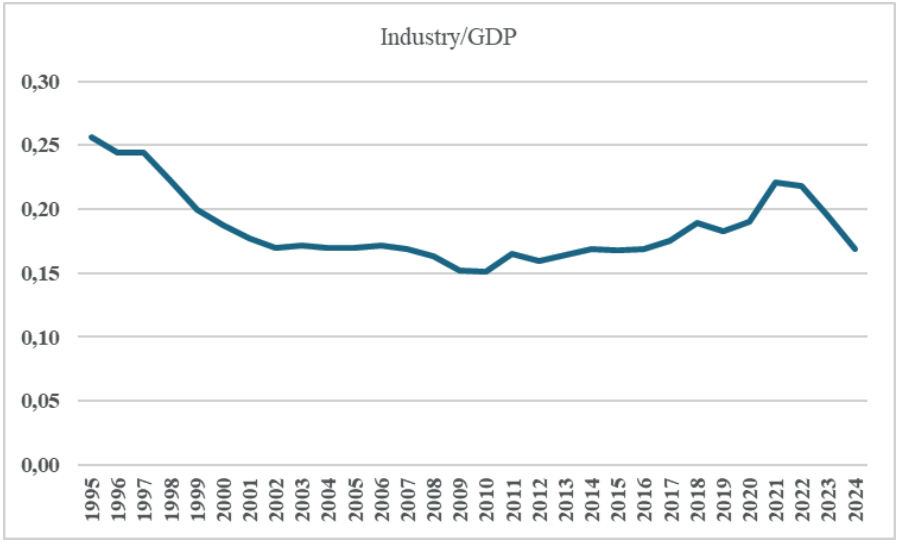

Figure 1: Industry/GDP ratio

Source: TÜİK 2024 Shares of sectors in GDP calculation according to production method

Industrial companies on the Istanbul Stock Exchange are grouped under the BIST Industrial (XUSIN) index. There are 238 companies listed on the index. The market value of the index has reached approximately 4 trillion Turkish lira. The number of investors exceeds 4 million. Approximately one-third of the index consists of chemical, pharmaceutical, petroleum, and plastics companies, followed by metal goods and primary metal industry companies (Borsa Istanbul Url1). Numerous academic studies have been conducted in this sector, which is the driving force of the country's economy. Research has been conducted on industrial companies in various disciplines such as marketing, accounting, finance, engineering, and public relations. This study aims to contribute to the literature on the sector and to examine the logic behind determining the market performance of industrial companies trading on the stock exchange.

Literature

This section summarizes some of the studies in the literature that used the Piotroski F-score and Altman Z-score.

In his study, Bozkurt (2014) examined the effect of firm bankruptcy probabilities on systematic risks and identified effective models for companies operating on the Istanbul Stock Exchange. According to the results of the panel data regression analysis, high bankruptcy probability increases systematic risk; the Altman-Z, Ohlson-O, and Springate-S models yield the most effective results.

In their study, Akyüz et al. (2017) examined the financial failures of paper and paper products industry companies traded on BIST using 2015 data. The Altman Z-score test and ratio analysis were used; 23 financial ratios were evaluated, and it was determined that 7 of them were significant in classification and achieved approximately 94% success.

Karadeniz and İskenderoğlu (2024) examined the financial performance of companies listed on the Istanbul Stock Exchange in the healthcare sector during the 2020-2022 period using the Piotroski F-Score method. The analysis based on nine indicators revealed that companies generally performed at a moderate level, with strong asset profitability and cash flows from operations, but weak earnings quality.

Kılıçarslan and Ergun (2025) examined the financial performance of four companies operating in the agriculture sector on the Istanbul Stock Exchange using the Piotroski F-Score, CRITIC, and COPRAS methods. The findings revealed that the F-Score and COPRAS methods were consistent; YAPRK had the highest performance, AGROT experienced a decline in 2023,

OZSUB weakened, and IZINV showed limited improvement. As a result, they demonstrated that multi-criteria decision-making methods are effective in financial analysis.

Erdinç (2025) examined the financial performance of companies in the agriculture, livestock, and hunting sectors traded on the Istanbul Stock Exchange between 2020 and 2023 using the Piotroski F-Score method. The analysis based on nine indicators determined that the companies' performance varied from year to year, that they were generally at a medium level, and that they were investable. The strongest indicators were return on assets, change in return on assets, and change in current ratio; the weakest indicators were earnings quality, change in leverage ratio, and low asset turnover rates.

Uzun et al. (2024) examined the data from 27 quarters of 298 companies traded on the Borsa Istanbul Equity Market between 2014 and 2020 to investigate the relationship between the Piotroski F-Score and market value. The findings showed that a 1-unit increase in the F-Score raised market value by approximately 6.14%. The study revealed that the F-Score is an important fundamental analysis indicator that investors can consider in their stock decisions.

Ertürk (2024) examined the 2020-2023 financial data of 13 companies in the BIST Tourism Index using the Altman Z-Score model. The findings show that the companies had different risk levels over the years: 4 risky, 2 gray, and 7 safe in 2020; 5 risky and 8 safe in 2021; 2 risky, 4 gray, and 7 safe in 2022; and 4 gray and 9 safe companies in 2023. The study revealed that the risk of financial failure in the tourism sector fluctuates periodically.

Uslu (2024) examined the primary metal industry sector operating on the BIST. The study analyzed the bankruptcy risks of 18 companies using the Altman Z-Score model. The sector average was determined using the 2023 financial ratios of 28 companies, and the companies were evaluated according to their position relative to the average. Fifteen companies were rated below average, while 3 companies were rated above average. As a result, AYES, SARKY, and BURVA were identified as the most successful; TUCLK, DOKTA, and CELHA as the most risky; and CEMTS as the least risky company.

When the above studies are evaluated as a whole, it is seen that the Altman Z-Score and Piotroski F-Score models are used to measure the financial performance and bankruptcy risk of companies operating in different sectors on the Istanbul Stock Exchange. However, existing studies have generally been conducted on specific sectors and using a single method, and no study has been

found that tests the effect of both models on market value. In this context, this study aims to fill this gap in the literature by testing the relationship between the two basic models and market value together.

Data and Methodology

This study investigates the impact of financial stability and bankruptcy risk variables affecting market value using quarterly data from 2019Q1–2024Q4 for companies in the industrial sector included in the Finnet database and grouped by Finnet. The first part of the study presents the descriptive statistics of the data and examines its suitability for analysis. Next, the Hausman test was applied to the panel data analysis to select the appropriate model. Additional tests for autocorrelation, heteroskedasticity, and cross-sectional dependence were also performed. Year fixed effects were also included in the model. Table 1 presents the descriptive statistics of the variables.

Table 1: Descriptive variables

Variable	Obs.	Mean	Std. Dev.	Minimum	Maximum
ln_MV (Market Value)	8,819	21.6	1.83	14.48	26.78
Altman Z-Score (t−1)	7,653	7.8	4.43	-2.77	24.05
Piotroski F-Score (t−1)	7,069	5.56	1.59	1	9
Leverage (t−1)	7,657	0.53	0.25	0.06	1.27
Firm Size (t−1)	7,657	21.2	1.95	15.39	27.93

Table 1 shows that the natural logarithm of the dependent variable, company value (ln_MV), averages 21.6, with values ranging from 14.48 to 26.78. This indicates that there are significant differences between the companies in the sample in terms of their lowest and highest market values. The average Altman Z-Score, used as an indicator of bankruptcy risk, is 7.8 in the sample. This indicates that the companies in the sample are generally financially sound. However, the high standard deviation of 4.43 indicates that the companies' bankruptcy risk and financial health vary greatly from one another; in other words, the sample is heterogeneous in terms of the Altman Z-Score.

The Piotroski F-Score, which measures the operational efficiency of companies, was calculated as an average of 5.56. Considering that the score ranges from 1 to 9, it can be said that companies on the Istanbul Stock Exchange generally have a 'moderate' level of financial strength. The Firm Size variable shows a relatively more homogeneous distribution at an average level of 21.2 (Std. Deviation: 1.95). Finally, the average financial leverage

ratio is 0.53, indicating that companies in the sample finance approximately half of their assets with debt.

Table 2: Correlation Matrix

Variables	ln_MV (Market Value)	Altman Z-Score (t−1)	Piotroski F-Score (t−1)	Leverage (t−1)	Firm Size (t−1)
ln_MV (Market Value)	1				
Altman Z-Score (t−1)	0.1312*	1			
Piotroski F-Score (t−1)	0.1281*	0.1521*	1		
Leverage (t−1)	-0.012	-0.7288*	-0.0281*	1	
Firm Size (t−1)	0.8134*	-0.0490*	0.1002*	0.1201*	1

Table 2 presents the correlation matrix. The results indicate that the relationships among the variables are generally weak but statistically significant. The strongest positive correlation is observed between market capitalization and firm size, while the strongest negative correlation is found between the Altman Z-score and the leverage ratio. All other correlations remain at low levels, implying limited economic significance. Overall, the correlation structure does not suggest a substantial risk of multicollinearity. To validate this assessment, Table 3 reports the variance inflation factor (VIF) values commonly used in the literature. Since VIF values of 10 or above typically indicate multicollinearity and none of the variables in Table 3 approach this threshold, it can be concluded that multicollinearity is not a concern and the variables are suitable for regression analysis.

Table 3: VIF values

Variable	VIF	1/VIF
Altman Z-Score (t−1)	2.27	0.439749
Leverage (t−1)	2.25	0.443964
Piotroski F-Score (t−1)	1.05	0.951981
Firm Size (t−1)	1.03	0.96884
Mean VIF	1.65	

After confirming that there was no multicollinearity issue among the variables, the study employs the following econometric model, denoted as Equation (1). The model and its explanations are provided below.

$$ln(MV)_{it} = \beta 0 + \beta 1\ Altman_{(i,\ t-1)} + \beta 2\ Piotroski_{(i,t-1)} + \beta 3\ Size_{(i,t-1)} + \beta 4\ Leverage_{(it-1)} + \mu_i + \lambda_t + \varepsilon_{it}$$

The abbreviations and symbols used in the model are explained as follows:

- i: Cross-sectional unit (company),
- t: Time (quarterly period),
- ln(MV)it: Natural logarithm of the Market Value of company i in period t (Dependent Variable),
- β0: Constant term (Intercept coefficient),
- $Altmani_{t-1}$: Altman Z-Score (Lagged Bankruptcy Risk Indicator) of company i in the previous quarter (t-1), (Calculation of Altman Z Score in Appendix),
- $Piotroski_{it-1}$: Piotroski F-Score (Lagged Financial Health Indicator) of company i in the previous quarter (t-1),
- $Size_{it-1}$: Company size
- $Leverage_{it-1}$: Total Debt / Total Assets ratio (Financial Risk),
- μ_i: Unobservable firm-specific fixed effects,
- λ_t: Time-specific fixed effects (Periodic shocks),
- ε_{it}: Represents the error term.

After determining the econometric model, the Hausman test was performed to determine whether fixed effects or random effects were effective in the static panel data analysis. It was determined that the fixed effects were valid, and the analysis continued in that direction.

After the model was determined, the assumption tests were performed.

As a result of the diagnostic tests performed to test the reliability of the model, it was determined that there were problems of heteroskedasticity and autocorrelation in the model according to the Modified Wald and Wooldridge tests. The Pesaran CD test, which examines cross-sectional dependence, could not be applied due to the unbalanced panel structure of the sample. In this case, the literature suggests either narrowing the data set to balance the panel or assuming dependence while maintaining the current structure. In this study, the second approach was preferred to prevent data loss and to reflect the systematic risk structure of financial markets (the situation of being affected by common shocks) in the model. Therefore, the existence of cross-

sectional dependence was accepted, and the analyses were continued under this assumption using robust methods.

In the model estimation, the Driscoll-Kraay Estimator was used, which produces robust standard errors by simultaneously considering the problems of heteroskedasticity, autocorrelation, and cross-sectional dependence between units, which are frequently encountered in panel data sets.

The hypotheses used in the study are as follows:

- H1: There is a statistically significant and positive relationship between the Altman Z-Score and firm value.
- H2: There is a statistically significant and positive relationship between the Piotroski F-Score and firm value.

Regression Analysis

Table 4: Regression analysis results

Variables	Coefficient
Altman Z-Score ($t-1$)	0.0324***
	(0.0064)
Piotroski F-Score ($t-1$)	0.0192***
	(0.0052)
Leverage ($t-1$)	0.1934
	(0.1804)
Firm Size ($t-1$)	0.2145***
	(0.0552)
Firm Fixed Effects	Yes
Time Fixed Effects	Yes
Number of obs.	6,821
Number of firms	399
Estimation method	Fixed Effects
Standard errors	Driscoll–Kraay
Prob > F	0.0000
Within R^2	0.7558

Table 4 presents the results of a fixed-effects regression, estimating the factors affecting the market value of firms operating in the BIST Industrial sector using Driscoll–Kraay (1998) robust standard errors. The probability value for the overall significance of the model (Prob > F = 0.0000) indicates

that the model as a whole is statistically significant. Additionally, the R^2 value is 0.7558. This indicates that the independent variables explain approximately 76% of the variation in the dependent variable. When examining the effect of the Altman Z-Score on market value, its coefficient is 0.0324, showing that it has a positive and significant impact. This means that as the Altman Z-Score increases, market value also rises; in other words, companies with higher Altman Z-Scores are preferred by investors. Since the Altman Z-Score reflects bankruptcy risk, this finding indicates that between 2019 and 2024, investors made conscious investment choices rather than acting randomly, and they avoided companies with a high risk of bankruptcy. This result supports the H1 hypothesis.

The effect of the Piotroski F-Score on a firm's market value is positive and significant, similar to the Altman Z-Score. This indicates that during the period covered by the study, investors did not make speculative or uninformed investment decisions; on the contrary, they examined companies and preferred to invest in financially strong firms. Although the pandemic period and the entry of many new investors—who generally had low financial literacy—might suggest the possibility of a negative relationship due to speculative or uninformed investment behavior, the overall statistical results do not support this. Instead, the findings show that the majority of investors acted with similar reasoning and research, directing their investments toward financially stable companies. This result supports the H2 hypothesis.

When the results of the control variables are examined, the regression table shows that the effect of the financial leverage ratio on a firm's market value is not statistically significant. This outcome indicates that leverage did not have a meaningful impact during the period covered by the study, likely due to external factors such as the pandemic, as well as domestic economic conditions in Türkiye at the time, including high inflation, high exchange rates, and high interest rates, all of which placed significant pressure on the economy.

Finally, when the effect of firm size on market value is examined, a positive and significant relationship is observed. This indicates that as firm size increases, firm value also rises; in other words, larger firms are more favored by investors.

Discussion

According to the regression analysis, both the Piotroski F-Score and the Altman Z-Score were found to have a meaningful influence on the market values of firms in the BIST Industrial sector during the 2019–2024 period. This suggests that during the period under review (despite the pandemic and

high inflation), investors were not acting on speculative expectations; on the contrary, they invested in companies with high financial strength and low bankruptcy risk, with an awareness of these factors.

When the results are compared with the literature, our findings are consistent with the study conducted by Uzun et al. (2024), but they differ methodologically. Uzun et al. (2024) found a positive relationship between the Piotroski F-Score and market capitalization in their study covering the period 2014–2020. While a similar positive relationship was found in the current study, this study used one-period lagged (t-1) values of the independent variables to determine causality and employed the Driscoll–Kraay robust standard errors method. Furthermore, unlike previous studies, this study included time dummies in the model to control for the effects of periodic macroeconomic shocks (inflation, etc.) and to identify the impact of key indicators on market capitalization.

The findings of this study are consistent with those of Gülcan and Sakınç (2025), another recent study on the Borsa Istanbul Industrial Index. Using the Market Value/Book Value (M/B) ratio as the dependent variable, Gülcan and Sakınç (2025) concluded that the Piotroski F-Score positively impacts valuation multiples. This study, however, used the logarithm of Market Value as the dependent variable and demonstrated that financial structure (Piotroski) directly increases firm value. The results of both studies support the fact that BIST investors attribute higher values to companies with higher operational efficiency.

On the other hand, the effect of the financial leverage ratio, used as a control variable in this study, on market value was found to be positive but statistically insignificant. This differs from the general assumption in previous literature that "indebtedness creates risk and reduces firm value." The main reason for this situation can be explained by the unique macroeconomic conditions of the 2019-2024 period covered by this study (high inflation and negative real interest rates). In an inflationary environment, the fact that the cost of borrowing is below the real return potential may have neutralized the financial risk posed by debt. As a result, during the period covered by the study, investors avoided risky firms and preferred to invest in companies they identified as financially sound.

Conclusion

Companies listed on the BIST present their quarterly operating results to all stakeholders through financial statements. Investors need to have a certain level of financial knowledge to understand and analyze the raw data

contained in these statements. This poses a significant obstacle to investment activities for individual investors. Even with sufficient financial knowledge, conducting a comprehensive and industry-wide comparative analysis requires time, effort, and resources. To mitigate these difficulties, simplified methods have emerged, initially developed in academic literature and later adopted for use in investment activities. These methods aim to increase the speed and reliability of financial assessments. Among these metrics, the most widely used are the Piotroski F-Score and the Altman Z-Score.

Functionally, the Piotroski F-Score measures a company's operational soundness, while the Altman Z-Score is used as an early warning indicator of bankruptcy risk. These scores, which convert complex accounting data into understandable indicators, serve as an important guide, particularly for value investors who prioritize stability over short-term speculative gains. Furthermore, access to these indicators through modern data providers such as Finnet enables investors to quickly compare a company's position relative to its competitors in the industry. In this context, the current study examines the relationship between these financial health indicators and companies' market values in the Turkish context. The empirical analysis uses quarterly data from the Finnet database for industrial companies traded on the Istanbul Stock Exchange during the 2019–2024 period.

The results reveal that both the Piotroski F-Score and the Altman Z-Score show positive and significant relationships with company market values. This finding offers important implications for investors. Value investors can base their investment decisions on these scores. Furthermore, company managers can use these indicators to assess their company's position relative to other companies in the sector. As with any study, this study has certain limitations. The most important limitation of the study is generalizability. The study period covers years characterized by the pandemic, macroeconomic fluctuations, and financial volatility. Specifically, during this period, the number of domestic individual investors on the Istanbul Stock Exchange increased significantly; the number of investors was approximately 1 million in 2020 and approached 6 million in 2024. This influx of new investors may have contributed to a general rise in stock prices, partly independent of companies' fundamental financial indicators. Therefore, these extraordinary market conditions must be taken into account when interpreting the results. Furthermore, the study only considered industrial companies; different results may emerge in the service, banking, or finance sectors. Future studies covering different sectors or countries could enable comparative analyses and lead to more robust results.

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Appendix

Appendix Table 1: Calculation of Altman-Z

Variable	Formula	Description	Coefficient
X1	Working Capital / Total Assets (or Current Assets / Total Assets)	Liquidity indicator; relationship between firm size and liquid assets	1.22
X2	Retained Earnings / Total Assets	Indicator of earning power and ability to generate income	1.4
X3	Earnings Before Interest and Taxes (EBIT) / Total Assets	Profitability indicator	3.3
X4	Equity / Total Liabilities	Financial leverage indicator; reflects perception of firm value	0.6
X5	Sales / Total Assets	Asset turnover indicator	0.999

The Altman Z-score is calculated by multiplying the variables provided in Appendix Table 1, which are derived from financial statement ratios, by the coefficients in Equation (1). The calculated Z-scores are then used to evaluate bankruptcy risks based on the intervals presented in Appendix Table 2 (Koç & Ulucan, 2016: 155-156)).

$$Z=1.22X1+1.40X2+3.30X3+0.60X4+0.999X5 \qquad (1)$$

Appendix Table 2: Altman Z-Score Classification Zones

Z-Score Range	Interpretation
Z > 2.99	Low probability of financial distress (Safe Zone)
1.81 < Z < 2.99	Normal levels (Gray Zone)
Z < 1.81	High probability of financial distress (Risk Zone)

Appendix Table 3: Definition of Variables

Variable	Definition	Calculation Method
ln_MV	Firm market value (logarithmic)	Natural logarithm of Market Value
Altman	Altman Z-Score (bankruptcy risk indicator)	Altman (1968) formula; discriminant analysis of 5 key ratios
Piotroski	Piotroski F-Score (financial strength indicator)	9 criteria grouped under profitability, leverage & liquidity, and operational efficiency
Size	Firm size (logarithmic)	ln(Total Assets)
Leverage	Financial leverage ratio	Total Debt ÷ Total Assets