Using Discriminant Analysis Style to Measuring Accounting and Financial Indicators for Purposes of Predicting Financial Distress (Applied Study in Iraqi Company for Engineering Works)

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Abstract. This research aims to identify the nature of the cash flow statement, methods of preparing it and its indicators. Identify the nature of profitability and explain its indicators, shed light on the topic of predicting the financial distress of economic units, the causes of distress and ways to treat it, and use cash flow and profitability indicators to help predict the financial distress of Iraqi industrial companies listed on the Iraq Stock Exchange in the second and third years preceding the financial distress. The research community is represented by the industrial companies listed on the Iraq Stock Exchange, which number (21) companies until January 2023, while the study sample is the Iraqi Engineering Works Company in order to apply the current research in it. The research reached several conclusions, the most important of which was that the increase in cases of financial distress to which Iraqi industrial companies are exposed is due to the lack of instructions or directives specific to the industrial sector and the failure to use financial indicators through quantitative methods and methods to predict financial distress before it occurs, and to determine what the financial position will be in the future.

Keywords: accounting and financial indicators, discriminatory analysis method, forecasting financial distress.

1. INTRODUCTION

Financial distress is a serious threat facing the economic unit and other parties associated with it, which in turn will affect the imposition of continuity for this unit. Therefore, management at its various levels must find appropriate ways to predict the distress of the economic unit early and before that unit reaches the stage of failure and liquidation and thus exit the competitive market completely. It is worth noting that management has tools that help in the prediction process and work as an alarm device that alerts decision-makers in that unit to take a series of appropriate decisions to reduce financial distress. These tools are financial indicators that explain the relationship between two items or values of the content of the financial statements. By analyzing the financial statement indicators for a specific economic unit. It also works to compare the performance of the economic unit and its financial position over different periods. It was necessary for us to search for ways to predict this phenomenon, and to move towards adopting cash flow indicators because of the importance of these indicators in the process of studying and analyzing the financial position of economic units based on accounting and financial indicators.

2. RESEARCH METHODOLOGY

Research Problem

The problem of the research lies in the shortcomings of the financial ratios derived from the balance sheet and income statement, which are relied upon in the process of predicting the financial distress of industrial companies, because they analyze and interpret the results of business on an accrual basis, especially in periods of successive financial crises. Thus, the financial distress of economic units is predicted in a manner that is not characterized by accuracy and objectivity. When the information provided in the prediction process is inaccurate, this will be reflected in the preventive and corrective decisions taken by management.

The Importance of the Research

The importance of the research stems from the importance of predicting the financial distress of economic units, which represents an early warning through which the continuity of the activity of these units and their position in the market can be maintained, whether by taking preventive measures or corrective measures based on the predictive information that can be reached and before an appropriate period of financial distress, through what the indicators of cash flows and profitability provide to decision-makers in the management of economic units of signals that predict the future financial status of economic units .

Research Objectives:

This research aims to identify the nature of the cash flow statement, methods of preparing it and its indicators. Identify the nature of profitability and explain its indicators, shed light on the subject of predicting the financial distress of economic units, the causes of distress and ways to treat it, and use cash flow and profitability indicators to help predict the financial distress of Iraqi industrial companies in the second and third years preceding the financial distress.

Research Hypothesis

The research is based on a basic hypothesis that the use of cash flow and profitability indicators leads to predicting the financial distress of economic units by relying on the discriminant analysis method in a manner that is consistent with the requirements of the modern business environment.

Research Community and Sample

The research community is represented by the industrial companies listed on the Iraq Stock Exchange, which number (21) companies until January 2023, while the study sample is the Iraqi Engineering Works Company, which is a struggling company in order to apply the current research in it.

3. THE THEORETICAL ASPECT OF THE RESEARCH

The Concept and Importance of Accounting and Financial Indicators:

Accounting and financial indicators are important tools for evaluating the performance of economic units and their ability to meet their current and future obligations, because they represent a basic tool for financial analysis. They are a method that interprets the absolute numbers published in the financial and accounting statements, or they are the relationships between the accounting values that appear in the financial statements organized and arranged to be a function of measuring a specific performance at a specific point in time.(Needles et al., 2011: 687).

Accounting and financial indicators can be explained as follows:

First: Cash flow indicators: When examining the cash flow statement of an economic unit, analysts tend to focus on the efficiency of cash generation. Cash generation efficiency is the ability of the economic unit to generate cash from its current or ongoing operations. This is done through indicators used to measure cash generation efficiency, by measuring the funds that the economic unit must generate to continue operating at the planned level and meet its obligations. Current and ongoing operations obligations include interest, income taxes, dividends, and capital expenditures. The importance of these indicators is evident in that economic units that fail to adopt an effective cash flow strategy are likely to suffer from business stumbling and then failure in the competitive economic environment. They should take measures to mitigate cash flow volatility. High fluctuations in cash flow can seriously threaten the survival of those units, as cash flow volatility is inversely related to the value of the economic unit. When the cash flow indicators of an economic unit deteriorate (Özcan, 2020: 382).

Second: Profitability indicators: Profitability is a basic goal for all economic units and is necessary for their survival and continuity, and an objective that everyone aspires to. It is an indicator that investors are interested in and an indicator that creditors are interested in. It is also an important tool for measuring management efficiency, and expresses the relationship between the profits achieved by the economic unit and the investments that contributed to

achieving it, in addition to many of the decisions that result from it, which are: The investment decision and the financing decision , and the concept of profit is represented by the difference in form Positive relationship between the revenues collected from the sale of goods produced by the economic unit and its costs incurred during production, which is a measure of economic efficiency. Profitability indicators are viewed as a set of measures used to evaluate the performance of economic units in terms of generating profit from their operational activities. From the investor's point of view, it is one of the most important evaluation factors, as it demonstrates the overall management efficiency of the economic unit (Toshniwal, 2016: 177).

Using The Discriminant Analysis Method to Determine the Relationship Between Cash Flows and Profitability

Profitability indicators provide information that can be used to distinguish between net income determined according to the accrual basis and net cash flow determined according to the cash basis. On this basis, the economic unit achieving a high net profit figure does not necessarily mean that it has been able to achieve a high cash flow and vice versa, while if the net positive cash flow from the operational activity achieved by the economic unit during the year increases, the quality of the economic unit's profits increases and vice versa (Needles et al., 2011: 658).

High cash flows are essential to achieving and maintaining liquidity. If cash flows are insufficient to sustain current operations or finance future growth, the business will have to sell investments, borrow money or issue shares. On the other hand, if its cash flows are strong, excess cash can be used to reduce debt, thereby lowering its debt-to-equity ratio and improving its financial position. This in turn can increase the market value of its shares. As for profitability, the economic unit must constantly show that its profitability is positive in order to survive and maintain its shareholders and attract new ones by providing them with a satisfactory return on their original investments. Therefore, profitability indicators are the most important in the long term(Palepu & Healy, 2012: 202).

It can be said that the profitable activities in the economic unit may not result in cash inflows at the time the unit needs them, and the activities that may result in cash inflows may not be profitable, and the use of cash flow statement indicators in analyzing the data of the economic unit works to significantly reduce the cases of manipulation and misleading that may occur as a result of the administrations' adoption of profitability indicators. We do not mean by this raising the importance of cash flow indicators at the expense of profitability indicators, but the aim is the necessity of having cash flow indicators to work together with profitability indicators, because the continuation of the economic unit is not only related to achieving

profitability, but also depends on its ability to pay its cash obligations on due dates. Profitability improves the financial position and increases the market value of the economic unit's shares as well as the positive cash flows from its operational activities(Otom, 2014: 56).

The Concept, Importance and Methods of Predicting Financial Distress:

Financial distress prediction remains an important area of focus for researchers due to its vital importance to economic units and stakeholders including investors, lenders, capital participants and those interested in markets in general. Moreover, the damages resulting from financial distress are high and can end the life of economic units. In such a case, it is necessary to Adopting Methods Through it, financial distress can be predicted as a mechanism for reporting cases of decline that these units may be exposed to, to help administrations initiate urgent remedial measures(Waqas & Md-Rus, 2018:3).

The process of predicting financial distress is meant as a mathematical process that aims to estimate potential future changes, through studying the financial indicators obtained from the published financial statements and working to reduce risks. It is an attempt to predict the future status of the economic unit through the financial statements and to know the degree of its continuity and the risks that it is likely to face(Yadiati & Rianti, 2018: 150).

Since the economic unit lives in a volatile and risky environment, it must use quantitative techniques in its decision-making process. Here, the importance of prediction emerges in general, represented by the following: (Nurudin, 2019: 116) (Khan & Raj, 2020:304).

1. It largely ensures the effectiveness and efficiency of the economic unit in flexibility with its external environment.
2. Identifying the needs of the economic unit in the short and medium term.
3. Contributing to reducing the size of financial risks that the economic unit may face.
4. Providing an image of the future trends of the economic unit and tracking the effects of future decisions.
5. It contributes significantly to decision-making and tracking the effects of decisions in the future.

As for the importance of predicting financial distress in particular, this importance appears in finding appropriate tools and mechanisms to predict the possibility of an economic unit reaching financial distress, with the aim of providing an early warning that helps in addressing potential problems that the economic unit may face before an appropriate period, to take the necessary corrective measures (Kamaluddin et al., 2019: 64).

The Relationship Between Accounting and Financial Indicators and Predicting Financial Distress Using the Discriminant Analysis Method

The relationship between cash flow indicators and financial distress can be shown. Through these indicators, signs of the health of the economic unit appear, because cash flow indicators give clear signals to predict financial distress through this relationship. If the indicators indicate that the economic unit has a reasonable ability to generate cash flows, the parties concerned gain confidence that the economic unit is able to fulfill its obligations and that it will avoid financial distress (Dirman, 2020: 21).

A well-functioning economic unit typically generates positive net operating cash flow and uses excess liquidity for its investment and financing needs such as purchasing property and equipment and paying off debts. Accordingly, the combination of positive net operating cash flow and negative net investing and financing cash flow indicates good financial performance. The combination of positive net operating cash flow, negative net investing cash flow (such as purchasing assets) and positive net financing cash flow (such as borrowing and raising capital) also indicates that the economic unit is in good health and growing. Otherwise, indicators indicate that the unit is on the path to financial distress (Jantadej, 2006: 7).

One of the things that pushes the economic unit to financial stumbling is the difficulty in generating cash flows. This happens when the revenues from the results of the economic unit's operations are not sufficient to cover the expenses of those operations. It can also be due to management as a result of its mismanagement of cash flows, which can lead to the worsening of the unit's financial situation and its stumbling. Problems in managing cash flows lead the economic unit to stumbling and financial failure or even bankruptcy. Effective cash flow management enables economic units to get the most out of their economic resources. The indicators included in the cash flow statement reflect financial performance well, as cash flow indicators have a clear and significant impact on the process of evaluating the liquidity of the economic unit (Schmuck, 2013: 216).

The benefit of profitability indicators is that they provide signals to the management of the economic unit that enable it to take quick and timely corrective measures in the event of risks. This may help save struggling economic units, as units need to improve their profitability and debt levels to survive for reduce the cases of financial failure and stumbling of those units (Tesfamariam, 2014:43).

Profitability indicators provide a basis for profit planning in each economic unit. Analyzing and interpreting profitability through its indicators reflects the strength of the economic unit in earning, its distance from stumbling, the efficiency of its performance, and

its use of its various resources. One of the reasons for financial stumbling is the decline in the profitability of the economic unit for consecutive years (Kumar, 2017: 5).

4. THE APPLIED ASPECT OF THE RESEARCH

An Introductory Note About the Research Sample (The Iraqi Engineering Works Company)

The company was established in 1985 under the name of the Iraqi Pastry Company, which is a mixed joint-stock company under the Companies Law No. (36) of 1983, with a nominal capital of (8000000) dinars divided into (8) million shares. The name and activity of the company were changed from the articles of association to become the Iraqi Engineering Industries Company, a mixed joint-stock company, in accordance with the decision of the General Assembly of the company in its meeting held on 9/28/1988. In 1989, the Iraqi Company for the Manufacture of Spare Parts - a private joint-stock company - was merged into the Iraqi Engineering Company - a mixed joint-stock company - to amend its capital to become (8700000) dinars, as the public sector contribution rate is 33.6% and the private sector contribution rate is 66.4%. In view of the harsh conditions that the country has gone through, especially the security situation in previous years at the sites of this company's factories located in different locations on the outskirts of the capital, Baghdad, in addition to the general economic situation, all of these matters led to a decrease in equipment requests to the level of Low prices for its products, as well as the shortage of electricity and fuel supplies led to a lower production rate than planned in the company's factories to meet the local market's need for construction and electrical materials .

Analysis of The Data of the Iraqi Engineering Works Company and Extraction of Its Indicators

This paragraph includes the process of calculating the financial indicators for the cash flow statement and profitability indicators for the study sample companies for the years (2020, 2021, 2022, 2023) respectively, and by adopting (16) indicators related to the cash flow statement and (6) indicators related to profitability, so that the total number of approved indicators is (22) indicators, and after extracting the indicators for each year, they are processed by the program (SPSS -26), and through the statistical method of multivariate discriminant analysis to reach the best variables. A role in the process of predicting the financial distress of the study sample companies, which in turn works to build a predictive discriminant function. The cash flow and profitability indicators of the Iraqi Engineering Works Company for the years (2020, 2021, 2022, 2023) can be explained, as shown in the following table:

Table 1 Cash flow and profitability indicators of the Iraqi Engineering Works

Company for the period (2020-2023)

Indicators	2020	2021	2022	2023
Current Debt Coverage Ratio	-2.44	-2.14	-0.72	0.82
Operating cash flow adequacy ratio	0.63	0.49	7.05	1.54
Operating cash flow to capital expenditure ratio	0.00	-7.53	0.00	0.00
Consumption effect ratio	-0.72	-0.80	-1.63	0.79
Operating cash flow to net cash flow ratio	1.40	1.44	4.08	1.22
Operating cash ratio	0.50	0.54	0.32	-1.86
Operating cash flow ratio	1.92	3.04	0.80	5.37
Operating Activity Index	0.50	0.53	0.32	-3.02
Operating cash flow return on assets	-0.07	-0.07	-0.04	0.07
Operating cash flow return on equity	-0.07	-0.07	-0.04	0.08
Operating cash flow per common share	-0.07	-0.06	-0.03	0.06
Interest and dividends received	0.13	0.28	0.60	0.00
Cash Dividend Ratio	0.00	0.00	0.00	0.00
Fixed assets turnover ratio	-0.92	-0.08	-0.04	0.09
working capital turnover ratio	-0.41	-0.48	-0.29	0.62
Debt coverage ratio	-0.06	-0.06	-0.03	0.07
Gross operating profit ratio	-2.28	-6.24	-1.11	2.12
net profit ratio	-4.47	-10.69	-2.32	-2.00
return on total assets	-0.17	-0.16	-0.14	-0.05
Return on Total Assets Ratio	-0.17	-0.16	-1.40	-0.05
return on equity	-0.17	-0.16	-0.14	-0.05
Distribution ratio	0.00	0.00	0.00	0.00

Source: Company published annual reports Iraqi Engineering Works.

The table above shows that the debt coverage ratio index reached its highest level in the year (2023), as this indicator indicates the availability of adequate liquidity to pay off due obligations without delay, and this is a good indicator. As for the operating cash flow adequacy index, it reached its highest level in the year (2022) and covers the company's needs by more than (5) times, which is a high indicator and indicates the presence of a cash surplus. It is noted that the operating cash flow to capital expenditures index of the Iraqi Engineering Works Company was poor due to the lack of capital expenditures as well as negative operating cash flows in most years, while it is noted that the high index of the impact of consumption is a bad indicator, as it reached its lowest levels in the year (2022) due to the high net operating cash flows, which is a good indicator. It is noted that the net operating cash flow to net cash flows index is at its highest levels in the year (2022), as it reached more than (3) times, which is a good indicator of cash generation, while the high index of the ratio of net operating cash flow to net income is a good indicator, and it reached its highest levels in the year (2022) Due to a

negative decrease in operating cash flows, which is a bad indicator. The operating cash flow ratio shows the efficiency of the credit policies of the Iraqi Engineering Company, as it reached its highest levels in the year (2023) due to the high level of operating cash flows as a result of debt collection for this year, which is a good indicator. The net operating cash flow indicator on operating profit before interest and taxes shows the ability of operating activities to generate operating cash flows. It reached its highest levels in the year (2021) due to a negative decrease in operating cash flows, which is a bad indicator. The net operating cash flow indicator on assets shows the ability of the assets of the Iraqi Engineering Company to generate operating cash flows. It reached its highest levels in the year (2023) due to the high operating cash flows, which is a good indicator. The share indicator shows The ordinary share of net operating cash flow is the ability of the Iraqi Engineering Company to distribute dividends, as it reached its highest levels in the year (20 22) and the operating cash flows are also negative, so it is not a good indicator. It is noted through the interest and dividends received ratio indicator that the relative importance of investment returns can be measured , as it reached its highest levels in the year (2022) due to the high interest and dividend proceeds that were collected, and this is a good indicator, while it is noted through the cash dividends ratio indicator that the ability and stability of the Iraqi Engineering Company to distribute dividends to its shareholders can be known, and the absence of distributions for those years can be noted, which is a bad indicator. The fixed assets turnover ratio shows the ability of the Iraqi Engineering Company's management to exploit fixed assets in order to generate operating cash flows, and it reached its highest levels in the year (2023), as the index was not at the required level, while it is noted that the working capital turnover ratio index indicates the efficiency of the Iraqi Engineering Company in managing cash, and it reached its highest levels in the year (2023), despite its low level, it is an acceptable indicator, and the financial flexibility index shows the ability of the Iraqi Engineering Company to pay its obligations from the operating flows it generates, as it reached its highest levels in the year (2023), although it is a weak indicator, and the gross operating profit ratio index indicates The efficiency of the Iraqi Engineering Company's management in dealing with the components of the cost of sales, and reached its highest levels in the year (2023), as it reached more than (1.7) times, which is a good indicator, while it is noted that the net profit ratio indicator is a measure of net profit after interest and taxes for each dinar of net sales, as it is a good measure for measuring the efficiency of the Iraqi Engineering Company, and reached its highest levels in the year (2023) as the company achieved a loss, but the indicator is higher than the rest of the years, and the return on total assets indicator measures the ability of assets to generate profits before interest and taxes, and reached its highest levels

in the year (2023), but the level is low due to the company's losses, while the net profit on equity indicator measures the quality of managers' employment of the funds invested by the shareholders of the Iraqi Engineering Company, and reached its highest levels in the year (2023) as the company achieved a loss, but at a lower level, and the distribution ratio indicator shows what It represents the amounts that will be distributed from the net profit after tax, and the percentage for all years was (0), which is not a good indicator due to the successive losses and the lack of distributed profits .

Application of The Discriminant Analysis Method to Predict Financial Distress in The Research Sample Company

The importance of discriminant analysis is highlighted by the fact that it is one of the important statistical methods that has been used by many researchers in various sciences, due to the accurate and objective results that this method provides that can be relied upon in the decision-making process, and it shows There are some independent variables whose significance level is less than (5%), meaning that these variables do not follow the normal distribution, and since the sample size is less than (30), these variables cannot be relied upon, so the researcher excluded those variables.

Box 's M test was used, which is a multivariate statistical test used to verify the equivalence of multiple covariance matrices and to test the homogeneity of the variance of the two groups in this study. This test was used as it is based on the hypothesis of the normal distribution of data, as shown in the following table:

Table 2 M Box's Test Results for the Iraqi Engineering Works Company for the period (2020-2023)

Box 's M Test		30,041
F	Approx.	6,420
	Degree of freedom1 df1))	3
	Degree of freedom2 df2))	6480.000
	Morale (Sig.)	0.000
Testing the null hypothesis of equality of covariance matrices of groups		

Source: Prepared by the researcher based on the outputs of the (SPSS-26) program.

It is noted from Table (2) that the value of M Fairly high and the moral value of F It is 0.000, which is less than (0.05). Accordingly, the results of the (Box's M) test indicate the lack of homogeneity of variance (equality of matrices) for the independent variables between the two categories of the dependent variable, i.e. lack of homogeneity. Homogeneity is achieved if the value is F is greater than (0.05), and therefore the assumption of homogeneity of the two groups was not achieved, as it is possible to overcome this because the discriminant function

does not depend on very weak data when constructing the function. It shows the arithmetic mean and standard deviation of the accounting variables of the data of the study sample companies. Table No. (3) also shows that the lowest value of the arithmetic mean was achieved by the troubled companies corresponding to the indicator (X_{17}) (gross profit / net sales), and amounted to (1.204-), as it indicates the problem of the inefficiency of the management of these companies in dealing with the components of the cost of sales elements, and the effect of this indicator is simple as it is somewhat close to the values of the other indicators .

Table 3 Description of independent variables for the Iraqi Engineering Works Company for the period (2020-2023)

Company sample research		Mean	Std. Deviation	Valid N (leastwise)	
				Unweight	Weighted
Iraqi Engineering Works Company	X_1	0.44	0.64	4	4
	X_2	2.64	1.73	4	4
	X_3	0.29	2.28	4	4
	X_4	0.47	0.88	4	4
	X_6	-1.83	1.32	4	4
	X_7	9.71	10.93	4	4
	X_8	-1.94	2.51	4	4
	X_9	0.01	0.21	4	4
	X_{10}	0.17	0.08	4	4
	X_{11}	0.97	1.89	4	4
	X_{12}	0	0	4	4
	X_{13}	0	0	4	4
	X_{14}	-0.21	1.89	4	4
	X_{15}	0.42	0.39	4	4
	X_{16}	0.02	0.21	4	4
	X_{17}	-2.41	5.87	4	4
	X_{21}	0.08	0.51	4	4

Source : Prepared by the researcher based on the outputs of the (SPSS-26) program.

Table No. (30) shows that the highest value of the arithmetic mean was achieved by non-stumbling companies corresponding to the indicator (X_7 (total operating cash flows/net sales) which amounted to (9.71), as most successful companies achieve positive values, meaning that they achieve operating cash flows from their net sales, in addition to the efficient management of these companies of the credit policy, and it is clear that the rise in this indicator indicates that companies are far from the risk of default and vice versa .

In order to demonstrate the extent of the availability of statistically significant differences between the means of the independent variables, this was done by conducting an analysis of variance for the independent variables individually and for both groups. It is clear from the

results of the variance test that the difference between the means of the independent variables of the two groups did not have a significant effect, and this was confirmed by (sig > 0.05) , in addition to the high values (Wilks' Lambda) , as the statistic (Wilks ' Lambda) It is used through the multiple discriminant analysis method in the process of determining the most important variables in the prediction process and through the discriminant function that will be built with those discriminating variables, as its value approached one, and this also confirms the lack of significance of the averages of the independent variables for the two groups, and the values can be explained (Wilks ' Lambda) For the variables included in the discriminant analysis through Table (4) below.

Table 4 Analysis of variance

Independent variables	Wilks ' Lambda	F	Freedom level 1 (df1)	Level of freedom 2 (df2)	Sig.
X_1	2	0	1	3	1.97
X_2	1.99	0.08	1	3	1.7
X_3	1.3	6.43	1	3	0.25
X_4	1.92	0.47	1	3	1.29
X_6	1.98	0.1	1	3	1.67
X_7	1.62	2.85	1	3	0.55
X_8	1.05	10.76	1	3	0.12
X_9	1.77	1.54	1	3	0.83
X_{10}	1.94	0.38	1	3	1.36
X_{11}	1.92	0.47	1	3	1.29
X_{12}	1.42	4.88	1	3	0.34
X_{13}	1.98	0.11	1	3	1.64
X_{14}	1.7	2.08	1	3	0.69
X_{15}	1.93	0.4	1	3	1.34
X_{16}	2	0	1	3	1.98
X_{17}	1.67	2.38	1	3	0.63
X_{21}	1.93	0.45	1	3	1.3

Source : SPSS -26 program outputs.

From the above, the independent variables that enter into the formation of the discriminant function can be explained through the following table:

Table 5 Independent variables involved in constructing the discriminant function

The symbol	Financial ratio	The equation
X_8	Operating Activity Index	Net operating cash flow / operating profit before interest and taxes
X_7	Operating cash flow ratio	Total cash flow from operating activities / net sales

Source : SPSS -26 program outputs.

The table above shows the most important indicators that were reached through the multiple discriminant analysis method, which are: the operating cash flow ratio and Operating Activity Index, after the program excluded indicators with a weak role through its multiple steps, as it is possible through the function formed by the two indicators in the table above to distinguish between distressed and non-distressed companies. From what is presented, it is clear that the percentage of Independent variables Which is distinguished by its great role in the process of predicting financial distress, which was chosen by the program after excluding five indicators because they do not follow the normal distribution and whose significance is less than (5%) at the beginning of the analysis process and entering (17) variables in the analysis process because they have a normal distribution, i.e. their significance is higher than (5%), and arriving through the analysis process to the most influential variables, which amount to (11.75%) of the total of these variables that entered into the analysis process, which amounted to (17) variables, as it amounted to 88.25% is the percentage of variables with a weak role that were excluded from the total variables included in the discriminant analysis. Table (6) shows the value of the legal correlation, which was close to one. This value shows the relationship between the discriminant point and the groups. The closer the value of this correlation is to one, the better the function is. Its value was equal to (0.861). Based on the value of the legal correlation, it can be said that the discriminant function has a good ability to discriminate based on the most important selected indicators.

Table 6 Eigenvalue of discriminant function

Eigenvalues				
Function	Eigenvalues	Variance	Cumulative	Canonical Correlation
1	2.866 $_a$	100	100	0.861
a - The first legal discriminant functions used in the analysis				

Source: SPSS - 26 outputs

It is noted from the above table that all the ratios of this table of the level of eigenvalue, the degree of variance, the degree of accumulated variance, and the level of legal correlation all indicate the good level of performance of the discriminant function.

What was reached through the statistical program after statistically analyzing the data to reach the best indicators of cash flows and profitability in the process of predicting financial distress through the discriminant function, and through the analysis processes, the best indicators were reached, which prove the validity of the study hypothesis that states (the use of cash flow and profitability indicators leads to predicting financial distress of economic units using the discriminant analysis method in a manner that is consistent with the requirements of

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the modern business environment) after the indicators of the operating cash flow ratio and the operating activity index proved their distinctive role in the process of predicting financial distress .

It is possible to evaluate the accuracy of the function in predicting the research sample company by comparing the results of the discriminant function for each company with the cut-off point. Since the cut-off point is between (1.466- and 1.466), it is possible to compare the results of the discriminant function with zero. If the results of the discriminant function are greater than zero, then the company is not in trouble. However, if they are equal to or less than zero, then the company is in trouble. The accuracy of the discriminant function can be shown in the analysis year (2023) and the consistency of its results with the basic classification, as shown in the table below.

Table 7 Predicting distressed and non-distressed companies according to the discriminant function for the year of analysis (2023)

Company Name	Basic classification	Function values	Function classification	Congruence
Iraqi Engineering Works Company	Stumbling	-3.03	Stumbling	identical

Source: Prepared by SPSS -26 program outputs.

It is clear from the table above that there is a matching rate for the discriminant function of (100%), as it can be said that the use of cash flow and profitability indicators leads to predicting the financial distress of economic units using the discriminant analysis method in a manner that is consistent with the requirements of the modern business environment. From this research, the distinctive role of cash flow indicators and their superiority over profitability indicators can be understood, as profitability indicators have a role, but it is simple compared to cash flow statement indicators, so they were excluded from constructing the function.

5. CONCLUSIONS AND RECOMMENDATIONS

1. Using cash flow indicators in the process of predicting the financial distress of companies helps provide highly reliable results that help the managements of these companies to identify the future financial status of their companies and take appropriate corrective measures.

2. Adopting a combination of financial indicators based on cash basis and accrual basis can provide good predictive results regarding the future of companies and show the best indicators in terms of role and achieve the prediction process with the least possible

errors. Cash flow statement indicators are not an alternative to profitability indicators but rather complement them.

3. Quantitative methods are the best methods in the process of predicting financial distress, including the discriminant analysis method, as this method provides results that can be adopted and relied upon, in addition to the time, effort and cost that the discriminant analysis method saves.

4. The descriptive analysis has proven the effective role of cash flow indicators, as these indicators provide high levels of realism and objectivity that help company managements draw up their plans according to the results of analyzing these indicators.

5. There is a relationship between cash flows, profitability and financial distress, and the possibility of benefiting from this relationship by employing it for the benefit of companies by using cash flow and profitability indicators in the process of predicting the risks that companies may be exposed to in the future.

Recommendations

1. It is necessary for the economic unit to adopt a combination of financial indicators based on the cash basis and the accrual basis, as through the combination of indicators it is possible to provide good predictive results related to the financial future of economic units, identify the most important indicators and achieve the prediction process accurately.

2. The necessity of adopting quantitative methods in the process of predicting financial distress, including the discriminant analysis method, as this method provides results that are characterized by accuracy and objectivity, and can be adopted and relied upon.

3. The necessity of paying attention to cash flow indicators by financial analysts in economic units, as these indicators provide information that helps the management of these units in the decision-making process in general and in predicting financial distress in particular.

4. Resorting to holding seminars aimed at creating economic awareness among the management of economic units by presenting the problems and obstacles faced by the units that were exposed to financial difficulties, so that other units can avoid falling into the same problems.

5. Should be used Economic units from the relationship between cash flows, profitability and financial distress through their indicators that can be used in the process of predicting financial distress, through early detection of distress risks and providing unit management with appropriate information about future risks.

Using Discriminant Analysis Style to Measuring Accounting and Financial
Indicators for Purposes of Predicting Financial Distress (Applied Study
in Iraqi Company for Engineering Works)

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