Analysis of the Reality of Forecasting Corporate Default Using Non - Financial Indicators - A Suggested Model

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Abstract:

The research aims to build a mathematical model to analyze the performance of companies using non-financial indicators by data and explanations received from companies at the end of each financial period, so as to complement the approved models using financial indicators. The research assumed that the proposed model is not suitable for the use of non-financial indicators as a tool for predicting the financial default. The research was based on the applied side on the Iraqi industrial joint stock selected companies for the period (2009-2017). A group of default and non-default companies were selected for the purpose of testing the research sample, in order to achieve the main objective of the study, which is to build a model for predicting the financial default of the industrial sector for Iraqi public shareholding companies.

The research has reached a set of conclusions; the most important are the following:

1-   The results of the percentage values showed the potential of the proposed statistical classification model derived from the non-financial indicators, by reviewing the percentages of the model, it was found that the statistical classification capacity of the default company's model was reached 75%. The accuracy of the statistical classification model of the default companies reached 75%, while its ability to classify the default companies was 91.7%, this means that it succeeded in classifying 11 companies correctly and 1 company mistakenly.

I.   Introduction:

Iraqi industrial companies suffer from many uncertainties that imposed to find ways help in survive and achieve success. The concept is one of the main assumptions underlying the science of accounting, which should ensure smoothness and avoid weakness points and default in achieving these goals, one of the most important ways these companies seeks is to investigate models that can be used to analyze their performance.

The financial statements prepared according to accounting statements of some companies may contain abstract numbers that do not reflect the true financial position of the company, because they include misleading statements that could be interpreted in more than one aspect to be consistent with the financial situation and its

objectives. Therefore, it is necessary to investigate other non-financial models that do not rely on these data to inspire indicators that reflect the real situation of these companies and enable them to judge whether they can continue and evolve to achieve their set goals that help predict financial default and uncover ambiguity and mistake information, which may lie in some companies. The need for reliance on models has emerged to predict financial default using non-financial indicators and reliance on published data. Based on the above, the present study seeks to build a model to analyze the company performance which helps auditors to reach an opinion on the continuity of the company;it also assists management accountants in preparing reports to assist management in making good decisions and also helps investors in making good investment decisions and directing their investments towards successful companies.

II.   Research problem:

The problem of the study lies in the shortcomings of the current models based on financial indicators only and derived from the financial statements as a tool to predict financial default. The fact that some departments may resort to misleading in the presentation of financial statements in a way that is inconsistent with the reality of their financial situation. The use of non-financial indicators that have high credibility in testing the financial situation will have a significant impact in the misleading statement accompanying the results derived from financial indicators based on the results.

The previous accounting studies in this field have shown the availability of many models of financial default forecasting, but these models used financial indicators only by using financial statements and ignored non-financial indicators derived from clarification and other data issued by companies in addition to financial statements, since the non-financial indicators have great

relative importance compared to the financial indicators resulting from the financial statements, as they seek to bridge the gap between the reality of the financial situation of companies and the results of financial indicators, which overlook many considerations that identify the future financial default dimensions of those companies.

Research goal:

Building a mathematical model to analyze the company's performance using non-financial indicators through data and explanations received from companies at the end of each financial period.

Research hypothesis:

The proposed model is not suitable for the use of non-financial indicators as a tool for predicting the financial default shareholders industrial companies.

Research importance:

The research will try to find the relationships between the various data issued by the business companies in order to build the proposed model, and will look at the semantics and meanings of the numbers resulting from the model, thus predicting future trends of economic unity, which means adding new information to human knowledge.

The importance of research in practice in the construction of this model will shed light on the reality of the financial situation of companies and help auditors in assessing the ability of companies to continue their work in achieving the objectives set for them, therefore, issuing the auditors reports to judge the business results as being fair and equitable, thus helping those interested in assessing the business situation to make good decisions. It will also serve as an important model for management accountants to assist different departments in taking corrective action, as well as

helping financial analysts assess the company's financial position compared to its peers.

Research limits:

The current study is being conducted on the Iraqi industrial shareholders companies. The period from (2009-2017) was selected; the limits of the present study can be summarized as follows:

1- Using 4 non-financial indicators only, this was obtained through published financial statements.
2- The financial period of 2009-2017 was selected for the application of the present study.
3- Application on the Iraqi industrial shareholders companies.

III. Methodology:

The present study is applicable and analytical to the financial statements of the industrial sector in Iraq and for the period (2009-2017), where the application of the analytical applied method will be done by the following steps:

Secondary sources:

Through references, books, previous studies, periodicals, websites, researches and specialized individuals, these sources were used to identify the problem of the study and its questions and formulate its hypotheses.

Primary sources:

The research was based on the data published by the industrial shareholders companies listed in the Iraqi market for securities during the period (2009-2017), in order to achieve the main objective of the study to build a model of financial default forecast for the industrial sector of Iraqi public shareholding companies.

Theoretical framework:

The default of companies is at top news in the entire world, especially after the global financial crisis and the collapse of many large companies without warning, and although there are many models of forecasting default, which is supposed to predict the failure of these companies, but these companies have faltered. Companies are founded to stay but they may be challenged internal and external conditions which help in default.

The default phenomenon is a serious one for many businesses, both in the developed countries and growth one, because of the company's activities, that make many investment decisions, such as business expansions, borrowing and lending money, which may be the cause of default (AL-Zubaidi, 2002, 233).

It is possible to say that the default was not the result of a single decision, but most likely it may arise from a series of erroneous decisions that fail to direct the results of the work towards achieving its goals as well as the failure to follow up the implementation of development and growth decisions.

The concept of default:

There is a set of definitions of financial default in the accounting environment; Matar stated in his book "modern trends of analysis" that the financial default indicates the company's inability to achieve an adequate return cost lower than the capital cost (Matar, 2010, 352). It is also the stage where the company cannot meet its obligations to its creditors and thus liquidate or reschedule debts (Drapeau, 2000, 2), also known as the inability of the company to pay the current obligations on maturity (AL-Haili, 2007, p.56), some see the company as bankrupt (Mohammed & others, 2008, 210), Gibson believes that the default means the company's inability to pay dividends, short-term liabilities and interest on loans (Gibson,

2009, 451), and the department of Corporate Register in Iraq considered the company faltering and heading towards liquidation if it achieved losses for two consecutive years. It can define as the incompatibility of investment decisions with financing decisions, resulting in a gap between income and expenditures that made default. The company then is unable topay its short-term obligations until it reaches the inability to repay the interest on loans, bonds and premiums (Sheikh, 2000, 76).

We can define default as the following:

"The stage in which the company reaches default on its short-term obligations, its inability to realize operating profits also inability to pay its operating, investment and financing expenses and to achieve losses which may led to bankruptcy and liquidation".

Default appearances:

There are several specifications appear which indicates the financial default in the company to draw attention and take action, these are:

- Economic appearance: The inability of the company to achieve a return on investment more than the funds invested in the project (Mohammed et al, 2008, 176), or is the company's revenues to cover all costs, including the financing costs, in other words, the weakness of the management in achieving a return on investment exceeds the prevailing interest rates in the market and is not commensurate with the expected risks of such investment (Zubaidi, 2002, 236).
- Financial appearance: The company reaches financial hardship, where the book values of the company's assets less than the obligations, which is called legal hardship so the company reaches a financial bankruptcy and unable to pay its

debts, which leads to the financial liquidation of the company (Matar, 2010, p.363). Therefore, we can say the company default is the inability to pay short-term liabilities, even though assets exceed liabilities, it may be understood as a situation in which the company is in excess of its liabilities (Zubaidi, 2002,236).

Causes of default:

Default is a serious phenomenon in developed and developing economics due to a combination of external and internal factors such as: weak management, lack of liquidity, accumulation of losses and inefficient operating policies, including pricing and selling policies and high leverage (the contribution of loans to the financing structure). Or unjustified expansionary procedures, poor collection management, as well as the companies environment such as government procedures, work environment and competition.

It should be noted that a survey conducted by Dun &Bradestreet found that the main reasons for the default: the inefficiency of management and staff 93.1%, negligence 2%, fraud 1%, disasters 0.9%, other reasons 3%, this means that the causes of default or failure are multiple and most of them are non-financial, and cannot rearrange their position through a single process. The maximum degree of default or failure of companies is the case of loss of real solvency, which is the total failure to pay their obligations, even if given opportunities, in which the company has entered the stage of total failure, which leads to liquidation (Zubaidi, 2002, 233).

There are many reasons of default, including the inefficiency of workers and the rate of turnover and the loss of important competencies in management and these reasons are one of the main for the default of companies (Aql, 2006, 446), therefore, it can be said the default is the

result of a series of decisions effect on the company, so there are appearances of default before it appear. One of the most indicators of default is the late issuance of financial statements (Aql, 2006, 69). The main reasons for default are: (Argenti, 1983, 43)

1- Management: a- One person managing b- Unbalanced management

2- Information management: a- Weakness of the accounting system b- Low level of cost calculations c- Weakness in the information flow to the institution.

3- Not keeping pace with economic changes and developments in the business environment, while responding to technological and economic changes in the external and internal environment helps companies to develop and continue.

4- Expansion of work without good studying of environment is an important reason for the failure of companies.

5- Creative accounting is used as a tool to mislead, which affects the investor's decisions.

The importance of default predicting:

Forecasting is the bridge to the future for many companies, whether using statistical, mathematical or any other method. It is important to use structured scientific methods in forecasting to help take corrective action (Fadala, 1995, 43), scientists and practical people are of interest in the prediction of the default, because of the positive advantages it provides to users, so efforts are directed towards creating an early warning system to monitor the indicators of default from the beginning (Tawil, 2008, 73).

Thus, the research indicates that the results of the forecast, whether positive or negative are an important tool to move the company towards success and continuity, and the creation of an alarm system using the company's financial

default prediction models for the early detection of the flaw, enables it to take corrective actions to address the flaw is important for many categories.

Non-financial indicators:

Non-financial indicators are usually non-quantitative (Argenti, 1983, 83), non-financial indicators are concentrated according to company size, the age of the company, the late issuance and publication of financial statements, the use of creative accounting and the continuous change in accounting policies and principles. These indicators are the most influential on the business enterprises default, and were identified among the 16 models, in which these variables were used and studies are conducted as indicators of company default or non-default, with the aim of building models to predict the company default (Matar, 2001, 53).

Al-shaibani stated that the timing of financial statements issuance has a significant impact on the share prices of companies in the financial market; it helps investors to direct their investment towards successful companies.Also the issuance of lists within the legal period allowed may be an indication of the lack of financial problems with the establishment (Al-Shaibani, 2009: 95).Akl also stated that the late issuance of the financial statements is due to be considered one of the indicators of financial default of companies (Akl 2006: 62).

Community of the study and sample:

Community of the study:

The study sample:

The community of the study consists of Iraqi industrial shareholder companies listed in the Iraqi market for securities, whether they are default or non-default, during the period from 2009 to 2017 and the number (82) companies until 2017,

according to information taken from the Iraqi market for securities.

The study sample consisted of (24) industrial shareholder companies, (12) default companies and (12) non-default companies.The research considered that the companies that have achieved losses for two consecutive years or were liquidated according to the financial statements published in the Iraqi market for securities during the period (2009-2017) are the defaulting companies; it should have been established before (2009).The same number will be matched by non-default companies, which were established before (2009), and according to what has been mentioned previously, the non-defaulted companies were excluded and whose data were not complete or were established after (2009) of the study community. This is considered good for the purpose of the completion of such studies, and the sample is representative of the study community in order to rely on the results of the study.The researcher calculated non-financial companies for default and non-default for nine years.The accuracy of the classification model will be tested based on the last year of analysis, and the predictive accuracy of the model will be tested one year prior to default using the financial statements of the non-default companies.The study consisted of the following companies as shown in table (1) below:

Study tools: the study tools are as follows:

a- Financial statements published in the Iraqi Stock Exchange Market for the years 2009-2017.
b- Previous studies.
c- SPSS statistical program and Multi Discriminant Analyses.
d- Multi regression analysis to measure the impact of independent variables on the dependent variables.

Study procedures and statistical processing:

To achieve the study objectives in identifying the indicators related to the financial default of the company's research sample, the research used (Multi Discriminate Analyses) in order to identify the discriminatory variables (discriminatory equation), to develop the target model in the present study.

Multi discriminate analysis is a statistical method used to classify a view into a group of several groups, which is predefined using the individual characteristics of that view (Duda 2001). This method (Multi Discriminate Analyses) is used when the dependent variable is qualitatively eitherdefault or not-default, failing or not failing (Abdi, 2007). The use of this method requires first to identify the categories that are desirable to be classified (the study sample), and in this research are industrial public shareholder companies where the research will be classified into default and non-default.

Table (1) sample of the study for default and non-default companies

Default companies	Non-default companies	Expiry date of the fiscal year
Electronic industries	Modern paint industries	31/12
Fallujah for construction materials production	Ninewa food industries	31/12
Al-Hillal for industries	Northern soft drinks	31/12
Iraqi dates manufacturing & marketing	Iraqi engineering works	31/12

Iraqi Carpets & Furniture	Kirkuk for the production of construction materials	31/12
Modern Chemical products	AL Khazir Road for producing & trading construction materials	31/12
National chemical & plastic industries	Al-Mansour pharmaceutical industries	31/12
Production of ready-made clothes	Modern construction materials industry	31/12
Light industries	Baghdad packing materials industry	31/12
Modern sewing	Baghdad for soft drinks	31/12
National company for home furniture industries	Eastern beer	31/12
AL-Kindy for veterinary vaccines production	Iraqi company for carton industries	31/12

Table (1) shows the companies which are selected as a sample according to criteria mentioned above, where the company which has achieved losses for two consecutive years or was liquidated as a default company. The number of default companies reached (12) and in return (12) non-default companies were randomly selected based on the layers of non-default companies.

The collection of data for each category is the second step which comes after the identification of these categories and in the present research these data are non-financial indicators, where these indicators are the discriminatory variables expected to result from Multi Discriminate Analysis, after analyzing these variables. The variables that result from Multi Discriminate Analysis must measure the characteristic of each category (McLachlan, 2004), so that the model to be developed has a classification and predictive power.The third step of discriminatory analysis examines a number of linear groups through those ratios introduced into the analysis, through which the research seeks to reach the best group that has a classification and predictive power (Friedman, 1989).

The linear group chosen by Multi Discriminate Analysis as the strongest group for predicting financial default is called discriminatory equation (Gharaibeh, 1987). This group contains the strongest variables that have a discriminatory ability, and these variables are accompanied by coefficient that reflects the relative importance of these variables (Dirichx and Landeghem, 1994).

The Discriminate Analysis seeks to find the interrelationship between the independent variables and to maximize the separation degree between groups or to minimize the overlap degree between groups, and to measure the spacing degree between them, the wilks lambda indicator is used, where the value indicates close to zero of the independent variable which means that the variable has a high discriminatory ability between the target groups, but if its value refers to one for the independent variable, it means that there is no discriminatory capacity for this variable between the groups therefore is excluded from

discrimination equation. The discriminate equation or model that results from the use of Multi Discriminate Analysis usually takes the following form (Nam and Jinn, 2000) (Hamdan, 2018, 53).

$$Z = a_0 + X_1a_1 + X_2a_2 + X_3a_3 +...........X_na_n$$

Where:

X = the discriminatory variable (non-financial indicator) chosen by Multi

Discriminate Analysis as a discriminatory variable with predictive power.

A= the relative importance of the discriminatory variable (non-financial

Index) or the coefficient of the discriminatory variable.

a_o = the constant coefficient of all variables in the discriminatory equation.

Z = the value by which can judged to be default or non-default and is called the

Discriminatory value.

Based on the above, the following procedures were taken to derive the discriminatory equation:

First: the stage of determining the study sample (studied groups):

The default companies were identified by the financial statements of these Companies for the years (2009-2017), the research considered that the company Which has achieved losses for two consecutive years or more and still making losses, here it is necessary to clarify that some companies may have made losses during the period (2009-2017), for two years or more, but later make profits, for example, the company achieved losses in (2009-2010) but later achieved profits such a company did not consider default company because it was able to adjust its financial situation.

The researcher considered companies that deleted its shares in the Iraq Stock Exchange for trading and were liquidated according to market statements consider this company as default company, the default companies reached (17) companies, but the researcher has chosen (12) companies and excluded (5) companies because of the lack of financial data for them, or these companies have issued financial statements in which they achieved losses but did not actually practice commercial activity for a long period from the date of incorporation where there are no purchases, sales or revenues. Therefore, all default companies were selected during the study period. In contrast, 12 other non-default companies were selected according to the layers of default companies were randomly selected as the research took into consideration that these companies are working in the same type of industry, 30% of the study community. The similarity between the selected samples was based on the type of industry and the end date of the financial year.

Second: The stage of data collection and extraction of non-financial indicators:

The researcher collected and compiled the financial statements of all companies, and these data were obtained by Iraq Stock Exchange as these data are saved there, which it is a neutral party and companies are obliged to send their annual statements to it. The required financial ratios and indicators were then extracted through the financial statements; non-financial indicators were extracted by the company's dataand disclosure issued about the number of employees during the year of analysis. The date of issuance of the financial statements was obtained by specifying the date of the general assembly meeting for approving the financial statements and publishing them in the official gazette. The size of the company is determined by total assets and this has been followed by previous accounting studies

Third: the stage of data ranking and classification

After extracting all percentages and non-financial indicators, the data was arranged using EXCELL program where each non-financial indicator was given a symbol, for example, the size of the company X_1, the age of the company X_2, and so on for all indicators were selected for all the covered years. The ratios and indicators were four non-financial indicators and introduced in a more accuracy way in the development of the target model. The non-financial indicators entered in Multi Discriminate Analysis were shown in table 2.

Table (2) Non-financial indicators used in the study

The indicator	How to calculate the indicator
The number of delayed days in of issuing statements	The number of late days for the date set by the securities commission
Employee turnover	Number of employees who left their jobs during the year / average number of employees
Age of the company	The number of years the company spent in the labor market from the date of its establishment
Company size	Total assets

Fourth: The analysis stage of the data and access to the target model

The researcher used Multi Discriminate Analysis, to develop a model for predicting financial default by using this data. The discriminate analysis selects the variables that are able to distinguish default and non-default companies and are called discriminatory variables, which are independent variables that have a classification capacity and these variables are the components of this model. The variable that gives the maximum value of (F)

or the minimum valueof (Wilks Lambda) is usually chosen, because it has a better discriminatory and classification ability, thus introducing it to the discriminatory equations experienced by Multi Discriminate Analysis, then variables with a higher (F) value are then selected, and the variable with the greatest discriminatory power is determined based on the lower Wilks Lambda value and the value should be less than (1), variables with Wilks Lambda (1) are excluded because this means that the variable has no discriminatory power. The (F) value is higher than (1) and (Wilks Lambda) is less than (1).

Fifth: Testing the ability of the model classification:

The research tested the classification ability of the model through the last year of the selected companies as a sample, by determining the financial ratios of the last year and inserting them into the model, and then determine the classification mark obtained by the company, then it is compared with Z value in the model, and the above will be applied to all companies in the sample, to determine the credibility of the model and results.

Sixth: Study variables:

The selection of independent variables of the study was not easy, as previous studies and research conducted in this field were followed, such as the study (Matar, 2001), which recommended the study of non-financial indicators and their impact on the default of companies, especially the size of the company, the age of the company, and the delay of issuing financial statements.

The researcher also conducted researches and studies in this field (Altman, 1981), (David, 2002), (AL-Jahmani& David, 2014), (Balcean, and, Ooghe, 2004), (Rugby, 2006), (Deakin, 1972), (Platt, 1990), (Litinen, 1991), (Dahyat,

2008),The following variables were selected as independent variables for the purposes of achieving the objectives of the present study by developing a model to predict financial default.

1- Independent variables:
a- Company size b- Company age c- Delay in issuing financial statements d- Employ efficient
2- Dependent variable: predict financial default

Study results and test hypothesis:

Results:

Preface:

The main objective of the researcher is to develop a mathematical model to predict financial default using non-financial indicators. The research also aims to determine the impact of each of the study variables in the above hypothesis on the prediction of financial default. The achievement of this purpose comes through the negation of the hypothesis, which indicates that it is not suitable to use the model based on non-financial indicators as a tool to predict the financial default of industrial companies contributing in Iraq.

The researcher used (Multi Discriminate Analysis) in order to develop the model of non-financial indicators, where the researcher entered all non-financial indicators and identified as independent variables, which were mentioned earlier for the statistical program (Multi Discriminate Analysis) and the branch of the statistical program (SPSS V17). The researcher got the outputs of the analysis, which are the most capable variables to distinguish between default and non-default companies, which usually have greater predictive power, and then get what is called the discriminatory equation. This equation is usually accompanied by so-called standard discriminatory transactions, and standard discriminatory transactions, the amount of each indicators

contribution to predict the financial default of industrial companies. The non-standard discriminatory coefficients are the regression coefficient of each ratio, which consists of the discriminatory equation with predictive and classification power to be reached. The results in table (3) below, shows the results of the analysis of multiple differentiation (stepwise method) to examine the ability of non-financial indicators to predict the financial default of industrial public shareholding companies.The value of wilks lambda refers to the ability of non-financial indicators in the table to distinguish between default and non-default companies. This measure is used in a reverse manner so that whenever it is close to zero, this indicates the ability of the index to differentiate or strongly distinguish, while the closer to one trueLow capacity of this indicator to differentiate between the two classifications.

Table (3)

The results of the analysis of multiple differentiation (stepwise method) to examine the ability of non-financial indicators to predict the financial default of industrial public shareholding companies.

No.	indicator	Wilkslambada	Partial f value	Significance level of f	Wilkslambada of the sample
1	Employee turnover	0.576	140.56	0.000	
2	Delay days of issuing the financial statem	0.526	85.53	0.000	

	ents				
3	Comp any age	**0.488**	**66. 13**	**0.000**	
4	The size of the compa ny in logarit hm	**0.440**	**59. 75**	**0.000**	

Table (4) above shows the value of the standard and non-standard transactions of the discrimination model derived from non-financial indicators. The values of the standard transactions determine the percentage of contribution each indicator in the model to distinguish between default and non-default companies. This percentage increases with the value of the coefficient, therefore, the strongest contributions to the distinction was the turnover rate of employees (0.826), while the lowest contribution was the size of the company with (0.445), as for non-normative coefficients, it is a corresponding value for the standard coefficients in the construction of the discriminatory model, where the model is usually constructed using them.

The gap between default and non-default companies:

Table (5) shows the gap between default and non-default companies. The indicators of non-default companies in the study sample for a period of at least one year from the emergence of default indicators, also it was used to determine the predictive ability of the model, one year before the occurrence of the default situation.

Table (5) the gap between default and non-default companies

The company kind	The gap
Default	**1.2**
Non-default	**-1.05**
Mean of the gap	**.075**

The mean of the gap represents the criterion by which can judge if the company default or non-default, meaning that a company that achieves a score less than .075. This means that the mark moves to negative direction refers to Non-default Company, while the company that achieves a mark greater than .075 means Default Company because the mark moves toward positive to indicate the default.

Statistical classification ability:

Table (6) percentage of the model statistical classification ability derived from non-financial indicators.

Overall classific ation model power	Companies classification according to the model				Numb er of compa nies	The comp any situat ion
	default		Non-default			
	num ber	rat e	num ber	ra te		
83.35%	25%	3	75%	9	12	Defa ult
	91.7 %	11	8.3 %	1	12	Non-defau lt

The overall percentage of the model statistical classification is = 83.35%

Table (6) shows the percentage values of the statistical classification model derived from non-financial indicators, and a review shows also the ability to classifying by the model to default

companies reached 75%, while the statistical capacity of non-default companies reached 91.7%, where the model succeed statistically in the classification of default companies correctly (9) companies out of (12) and mistaken in the classification of (3) companies, which means the accuracy of the model in classification reached (75%) while its ability to classify non-default companies 91.7%, in other words, it succeeded in classifying (11) companies correctly and (1) company mistaken where it was placed among the default companies, which means the accuracy in the classification model for non-defaulted companies reached 91.7%. thus, when taking the mean of the rated ability of the classification model of the defaulted and non-defaulted companies, it turns out that the overall capacity of the model to classify both kinds of companies reached 83.35%.

The researcher concluded the following model:

$Z = 4.627 + (0.039X_1) - (0.407X_2) + (5.547X_3) + (.0.022X_4)$

Whereas

$Z = .075$
X1 = age of the company

X2 = the size of the company

X3 = employee turnover

X4 = delay in issuing financial statements

Conclusions:

1- There are many reasons to default, including the inefficiency of employees and their turnover rate and the loss of important competencies in management and these reasons are some of the main reasons for the default of companies.
2- Non-financial indicators are concentrated in the size of the company, the age of the company, the delay in issuing financial

statements, the use of creative accounting and the continuous change in accounting policies and principals.
3- Percentage values showed the potential of the proposed classification model derived from non-financial indicators, also a review of the model percentage showed that the statistical classification models capacity to classify defaulted companies was 75%.
4- The statistical classification capacity of the non-defaulted companies was 91.7%. The model was able to classify the defaulted companies correctly; (9) out of (12) companies.
5- The accuracy of the statistical classification model of the defaulted companies was 75%, while the ability to classify the non-defaulted companies was 91.7%, which means that it succeeded in classifying 11 companies correctly and 1 company mistake.

Recommendations:

The research concluded recommendations by analyzing the previous results which are the following:

1- The use of the model by the interested parties in the defaulted companies as the prediction ratios was (83.3).
2- Make attention to the adoption of financial and non-financial indicators when the public shareholding companies predict the future status of the company about development and growth.
3- The research also recommends conducting other studies and researches regarding non-financial indicators and taking into consideration other variables due to their importance such as: changes in laws especially tax, technological changes, disclosure, institutional governance and others.

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