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Studying the financial performance in the Algerian industrial company using: The kida and bildebreek model case study "RCA ROUIBA"

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Abstract
This study aims to empirically testing the financial performance of RCA Rouiba Company during the period 2014-2016. And to achieve the objectives of the study, we used two global models for financial failure prediction**:** Kida and Bildebreek model, and a set of financial ratios, to determine the company financial failure in future.
The test results for the two models showed that RCA Company suffers from serious financial problems that can hinder problems that hinder its continuity. The study also revealed that the company has a serious management problems, mainly; the problem of managing financial resources (Treasury problem), which negatively affected their profitability during the three- year period of the study.
Lastly, the two models mentioned above are considered to be the most prominent global models in predicting financial failure of the company for next coming years. Thus, it is recommended to use these global models to determine their financial performance.

Keywords: Financial performance; kida model; bildebreek model; financial ratios

Introduction
Productive companies go through various stages of the business life cycle due to a variety of factors, internal and external, which constrain their managers to evaluate their performance to adapt to changes that are occurring.
Most industrial manufacturing company use their financial performance to determine how long they will survive, and whether they will go bankrupt later. This is the concern of all corporate management to reach the ultimate goal of continuity.
In order to achieve its goals effectively and efficiently, the company needs to measure and evaluate its results or, rather, assess its financial performance. Thus, most analysts use global statistical models to predict financial failure or their long-term fiscal situation. In this study, we will examine how strong these models are in reviewing robust results that indicate whether or not they will continue in the future.
The main issue of this paper arises:

How effective are the global statistical models in term of predicting the future financial failure of the company?
Hypotheses
To achieve the objectives of the study, two hypotheses have been formulated as follows:

H1: Kida model sohws that RCA Company had potential serious financial problems.

H2: The Bildebreek model revealed that RCA Company isn't subject to financial bankruptcy.

Objectives of study
More specifically, the study aimed to achieve the following objectives:
▪ To determine the financial performance of RCA Rouiba ….
▪ To predict the company financial failure in future…
▪ Select the most appropriate model

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Literature review

Among the previous studies that dealt with the subject of financial bankruptcy, we find many researchers who took up the concept including:

Altman. Edward I and Paul Narayanan, 1996 [6], who's the researche dealt with the universal statistical methods of financial performance and exactly the study of the financial bankruptcy, namely; Kida models and Bildebreek models among others to predict the bankruptcy of company.

Marwan Mohammad Abu Orabi, 2014, empirical Tests on Financial Failure Prediction Models, this author studied the financial Bankruptcy of some public shareholding companies listed on the Jordanian Stock Exchange, and he used Altman and Sherrod models to determine the real and future situation of this companies.

Abdel- Rahmankh. El- Dalabeeh, 2013, The Role of Financial Analysis Ratio in Evaluating Performance. This author has tried to identify the role of the management accountant in evaluating the companies' performance through using the financial analysis methods in evaluating the performance of the National Chlorine industries and his study is based on the analysis of the financial statement by using the financial performance indicators.

Suh Collins Suh, 2017, the Role of Financial Statement in the Investment Decisions of A Micro Finance Institution (MFI)," thesis" this author aimed to know more about financial statements and to find out its contribution in investment decisions of an organization. Thus; he uses the financial indicators to determine the best investment decisions in the companies under study.

And this study is divided into two sections
First section: Conceptual Framework of Study

Second sections: Evaluating the financial performance of RCA Company with universal statistical method's

Conceptual framework of study
In this part, we will discuss the basic concepts of the study, which revolve around the concept of financial performance, ratios and the main financial indicators and their limitations.

Definition of performance
Despite the great relevance of individual performance and the widespread use of job performance as an outcome measure in empirical research, relatively little effort has been spent on clarifying the performance concept. Still, in 1990, Campbell described the literature on the structure and content of performance "a virtual desert. However during the past 10 to 15 years, one can witness an increasing interest in developing a definition of performance and specifying the performance concept.

Authors agree that when conceptualizing performance one has to differentiate between an action (i.e., behavioral) aspect and an outcome aspect of performance. The behavioral aspect refers to what an individual does in the work situation. It encompasses behaviors such as assembling parts of a car engine, selling personal computers, teaching basic reading skills to elementary school children, or performing heart surgery. Not every behavior is subsumed under the performance concept, but only behavior which is relevant for the organizational goals: "Performance is what the organization hires one to do, and do well. Thus, performance is not defined by the action itself but by

judgmental and evaluative processes. Moreover, only actions which can be scaled, i.e., measured, are considered to constitute performance.

Financial performance indicators
▪ **Current liquidity (CL)** expresses the capacity of current assets to cover current liabilities of the company:

(CL)= (Current assets / current liabilities)*100
In practice, the level of this rate should vary between 180% -200%.
▪ Immediate liquidity (IL) characterizes the capacity of high and average liquidity assets to meet current liabilities of the entity:

(IL)= (Current assets- inventories / current liabilities)* 100.
This rate is an important test for measuring the company's ability to meet short term obligations, its level should vary between 80% -100%.
▪ Effective liquidity (EL) reflects the ability of companies to repay outstanding debt from its own available cash:

(EL)= (Available cash/ current liabilities)*100
If the level of this rate is between 30% -100% it indicates a good financial security of the company with an optimum level of effective liquidity.
Solvency - reflects the company's ability meet financial obligations from its own sources. The most important rates used in assessingsolvency are:
▪ General solvency expresses the company's ability to cover total liabilities from total assets:

GS= (Total Assets/ Total liabilities)*100.
▪ Patrimonial solvency or financial autonomy rate is determined as the ratio between shareholders equity and total equity:

PS= (Shareholder equity/ Total equity)*100
Leverage rate is the ratio between liabilities and the company equity, and is calculated as follows:
▪ Global leverage rate, measures the ratio between total liabilities and equity of the company:

GLR= (Total liabilities/ equity)*100
▪ Financial leverage rate is determined as the ratio between financial liabilities and equity:

FLR= (Financial liabilities/ Equity)*100
The assessment of the leverage rate can be done according to the following values (Table 1). Current assets turnover characterizes the efficiency with which these resources were used in the business activity. To determine the turnover the following indicators are used:
▪ The average number of turnover cycles (N), which expresses the average number of times that current assets go through all stages of the economic cycle in a given period.

a) The average number of turnover cycles for current assets:
NR= Turnover/ Net current assets value.

b) The average number of turnover cycles for stocks:

NR= Turnover/ average value inventories.
- Average duration of a cycle in days (DD), which expresses the period of time required for current assets to go through all the stages of an economic cycle:

a) Average duration of current assets turnover cycle in days:
DD= (current assets/ Turnover)*365.

b) Average duration of inventory turnover cycle in days:
DD= (inventories/ turnover)*365.

- Return on capital employed, expresses a company's ability to have profit from the capital employed in its business activity. Its level is determined as the ratio between a result indicator and the total amount of capital used to achieve this result.

RCA= (EBE/ Capital Employed)*100

Balance sheet indicators and corporate value
ROE, which mainly interests shareholders can be broken down into three different elements factors, as a product of ROA, the debt ratio (the ratio between total assets and equity) and impact (Return on operating income including financial management).
ROI is used to evaluate operating managers and can be broken down into two elements:
ROS and the rotation rate of invested capital. Turnover, EBIT ROE and ROI are the primary indicators of a company's performance and consequently, over time, the value of the company itself (In addition to shareholders' equity).
Another version of the debt ratio is given by the ratio between liabilities (or borrowed capital) and equity. This ratio is considered in the financial leverage equation, which links ROE to ROI:

ROE= NI/E= OI/A*A/E*NI/OI=ROI*(L+E)/E*NI/OI
=ROI*NI/OI+ROI*L/E*NI/OI=ROI*(OI+FI-FC-T)/OI
+ROI*(OI+FI-FC-T)/OI*L/E
=ROI+(FI-FC-T)/A+ROI*L/E+ (FI-FC-T)/A*L/E
=ROI+ROI*L/E+(FI-FC-T)/E
=ROI+(ROI+(FI-FC-T)/l)*L/E

Where
NI: is the net income.
E: the equity.
OI: the operating income.
A: the assets.
L: the liabilities.
Furthermore FI, FC, T refer respectively to financial income, financial costs and taxes.
The terms inside the square brackets refer to financial leverages, the difference between interest receivable (Operating profitability) and interest payable (basically interest on borrowed capital); this difference is, in fact, the "leverage" on CT/CP. It is clear that satisfactory operating results (Represented by ROI) may not necessarily correspond to a similar positive return on equity (ROE) due to a negative leverage effect (Excessive financial costs).

Performance measurement
Frequently, organizations use the terms "performance management" and "performance measurement" interchangeably. Indeed, many organizations start a performance management initiative by defining and tracking measures (often referred to as Key Performance Indicators) without a real understanding of the enablers behind these measures.
This research emphasizes the need for organizations to understand Performance Management concepts before measuring performance. In the PMF Performance Management Framework Performance measurement as a means of assessing improvement is just one of the PMF methodology components.
The framework provides the user a means for choosing and implementing the most applicable management technique to improve enabler maturity, and thus improve the organization's overall performance. It is measuring this improvement that would help an organization gauge the success of an implementation.
The PMF provides a guide for organizations to determine the most appropriate Performance measures for the associated enabler, bearing in mind that balanced set of measures (e.g. time, cost, quality) should always be considered .For guidance; the PMF provides a list of suggested measures for each enabler.

Limitations of financial ratio analysis and further sources of information
Financial ratio analysis helps the analyst to get a first understanding of a company. However, it remains a very theoretical and past-oriented approach without a deeper understanding of the business model of a company, the comprehension of the dynamics of the industry and the markets the company is serving. To serve this information need the annual reports of companies include also non-financial data in the form of special reporting sections: These are the president's letter to shareholders, the management discussion and analysis and the auditor's report.
In order to assess the performance of a company, the financial ratio analysis is a fundamental starting point. To complement the performance picture, non-financial indicators and assessments about markets, competitors and internal strategies and processes are presented in the annual report. As an insider, one could bundle all these data in the form of a balanced scorecard in order to achieve a more holistic overview and actively manage the overall performance of a company.

Evaluating the financial performance of RCA Company with universal statistical Method's
In this axis, we decided to evaluate the financial performance of RCA Company with universal statistical Method's like Kida models and bildbreek models. So this choice is based on the accessibility of information which provide by RCA Company.

Kida failure prediction model
Kida Model is considered at the one of recent statistical method for financial prediction. This model also represents five separate financial ratios for predicting bankruptcy; these are represented in the following formula:

Z= 1,042X1+ 0,42X2+0,461X3+O,463X4+0,271X5.
Where:

Z= weighted average of five separate ratios.
X1= net profit tax/ the total assets.
X2= interest ad expenses discounted for short-term and long term obligations.
X3= (Accounts and notes payable/ total sales)*12.
X4= sales/ total assets.
X5= cash/ total assets.
Based on the number of points (Z scores), companies have been given five categories according to their ability to continue, and these categories are (Table3)

Bilderbeek failure prediction model
Bildebreek (1977) analyzed a sample of 38 firms which went bankrupt from 1950 through 1974 and 59 ongoing companies. They found that 85 firms had sufficient data for analysis. Bildebreek analyzed 20 ratios within a stepwise discriminant framework and arrived at a five-variable model of the form:

$$Z= 0,45- 5,03X1 -1,57X2+ 4,55X3+ 0,17X4+ 0,15X5$$

Where
Z= Z-score (Netherlands, Bildebreek).
X1= retained earnings/ Total assets.
X2= added value/ total assets.
X3= accounts payable/ sales.
X4= sales/ total assets.
X5= net profit/ equity.

Two of the five sign (coefficients), X4 and X5 are positive and contrary to expectations since for this model, negative score indicates a healthy situation and positive scores indicates a failure classification. His model was based o, observations over five reporting periods prior to failure and is not based on one year intervals. His results were only mildly impressive, with accuracies ranging from 70% to 80% for one year prior and remaining surprisingly stable over a five year period prior to failure. He explains in his book (1979) that the stability is due to the facts that there are not liquidity variables and the stable role of the value added measure. Subsequent tests of Bildebreek's model have been quite accurate (80% over five years). Apparently, several institutions are now using his model for practical purposes.

Methods
The study has adopted the applied research method to empirically test two financial failure models; namely KIDA and Bildebreek Z-Score models, using a case study approach, by analysings financial statements of RCA Company, and financial ratios extracted from the annual reports of RCA during the period 2014-2016.

Results
Table 2: The result shows in table 2 the different ratios of financial performance in RCA Company, were then extracted from the annual reports of RCA, for the period 2014- 2016. Concerned the ratios of liquidity, we Remarque that CL ratios is fluctuated between 2014 and 2016, First the ratios record 95% in 2014, and in 2015 is rise slightly by 96%, but in 2016 he reach from 81% , who shows that RCA company the capacity of current liabilities to finance current assets from this period.
Il ratios results shows that RCA company is between 59% and 62%, and this result less 80% and 100% , in this reason

we explain that RCA company wasn't able to meet short term obligations.
El ratios show that RCA Company between 11% and 23%, and this result was less the level offered by the rate (30% and 100%). It indicates a bad financial security of RCA Company. Concerned others ratios like GS, PS, FLR, the results obtained were insufficient for RCA Company to continue in this way.
And NR ratios, the results show that RCA Company required his assets for short period especially in last two years 2015 and 2016. However the RCA ratio were declined the two last year's, so we expressed that company's not able to have profit from the capital employed in its business activity. Also, ROE was dropped especially in 2016 because the company had very financial troubles.
Table 3 and 4 Kida model showed two risk degrees, the first one Z> 0,38 which signified company are considered as a good sign for being successful, in another meaning the company isn't subject to financial failure, and is in good financial condition, and $Z < 0,38$ which means company had potential serious problems and may not be to continue in the future. And after tested this failure model, we obtained that Z scores of Kida model are fluctuated for the period study (2014-206) in two years before 2016, Kida Z score shows that RCA Company as a good sign for being successful. It is important, however, to analyze the indicators at the origin of this situation. These indicators are: net profit tax, Accounts and notes payable, sales, cash were increased in 2014 and 2015.
But the results of the year that preceded the bankruptcy, an improvement is noted in that RCA company had potential serious problems, and may not be to continue without Kida model, and this result went to mismanagement and others debt financial who life company in the last years. These results support the rejection of the first hypothesis which stated that the KIDA model shows that RCA Company had potential serious financial problems .So, in this way we should to use this kind of predictive models in order to detect the real financial situation in the future, and take a best possible of decisions.
Table 5 and 6: Biblbreek model's shows two risk degree, the first one $Z < 0$ which means company enjoys a good financial situation, and it hasn't being a financial failure, and the second one $Z > 0$ which means company had potential serious problems , and may not be to continue in the future, and in order to determine the financial failure using the Bildebreek Model , and we obtained that Z scores ranging between 1,0178 and 1,338which are below were in second category, that company had potential serious problems and may not be to continue. This result obtained due at the origin of this situation as: retained earnings, added value, accounts payable, sales, and net profit.
In the two last years 2016 and 2015, the indicators like added value, retained earnings and net profit are slight decreased as consequently, at the mismanagement from her governess. So, in this case, we should regulate the financial situation as possible, in order to rise this indicators in the future.
Table 7: In order to determine the real financial situation of the company under study (RCA company), a differentiation between Kida models and Bildebreek models To confirm the results obtained previously, and we obtained that Kida model and Bildbreek model that both of them show RCA company had a very serious financial troubles and risk to

bankruptcy in the future, if she's continue at same performance. And most of the problem's had relation of:

- Mismanagement of credit management (RCA) wasn't able to collect its money from its customers in the specified periods.
- The low economic margin of RCA Rouiba, which is associated with a decline in business turnover, shows that the company sells without an acceptable profit margin.
- Accumulation of long and medium term debt of RCA Company.
- Company hasn't an additional margin of safety to cover its future investment cycle.

Conclusion

The purpose of this study was to indicate the ability of models of predicting corporate of RCA Rouiba Company listed in stock exchange in Algeria using Kida and Bildbreek Models. The researchers concluded that the two models applied in RCA Company during the three years preceding the bankruptcy 2016, 2015 and 2014 were appropriate model to predict the bankruptcy.

And the results confirmed the first hypothesis of RCA Company had potential serious financial problems according to KIDA model (Table 4). But the second hypothesis which said that the RCA Company isn't subject to financial bankruptcy is disconfirmed; as the results shows that Bildebreek model determined the Bankruptcy for RCA Company. For this purposes, we decided to offer some recommendations.

Recommendations

- Companies should apply the universal statistical quantitative methods to detect the. Actual and future financial situation Economic feasibility should be determined before making any investment.
- Companies should gather information about the competition by Conducting studies and surveys. Of the strength of competition of rivals in the market.
- Offering a percentage discount to customers who pay within a defined short period.
- Expand transactions with various companies in the field.

Appendices

Table 1: Leverage rate assessment table

Assessment	Global Leverage Rate	Financial Leverage Rate
Good	Up to 60 %	Up to 30 %
Satisfying	Between 60-100 %	Between 30-70 %
Insufficient	over 100 %	Over 70 %

Source: Chartered Professional Accountants of Canada, the CAM-I Performance management framework how to evaluate and improve organizational performance CAMI, CANADA, 2015, p 16.

Table 2: Financial performance indicators of RCA ROUIBA Company

Statement	2016	2015	2014
CL	82,55%	96,71%	95,41%
IL	62,12%	59,64%	60,13%
EL	22,35%	16,42%	11,51%
GS	57,27%	36,42%	36,83%
PS	44,88%	41,05%	42,86%
FLR	377,13%	303,25%	263,92%
NR	37,10	41,50	125,48
DD	984	879	291
RCA	30%	50%	51,72%
ROE	-2,57%	9,13%	36,70%

Source: prepared by researchers based on financial statements 2014-2016

Table 3: Risk degree of Kida models

Category	Risk degree	(Z)
First	Company are considered as a good sign for being successful	Z> 0,38
Second	Company had potential serious problems and may not be to continue.	Z< 0,38

Source: Adapted from: Khalid Alkhatib, Predicting Corporate Bankruptcy of Jordanian Listed Companies: Using Altman and Kida Models, International Journal of Business and Management Vol. 6, No. 3; March 2011, p209.

Table 4: Kida model analyses of bankrupt RCA Company.

Statement	Index	2016	2015	2014
X1	1,042X1	-0,5620	0,0236	0,0449
X2	0,42X2	0,0880	0,0104	0,1154
X3	0,461X3	0,0189	0,0352	0,0409
X4	0,463X4	0,1889	0,4158	0,4529
X5	0,271X5	0,0049	0,2337	0,0110
Kida z	/	-0,2613	0,7187	0,6651

Source: prepared by researchers based on financial statements 2014-2016.

Table 5: Risk degree of Bildebreek model

Category	Riskdegree	(Z)
First	Company are considered as a good sign for being successful	Z< 0
Second	Company had potential serious problems and may not be to continue.	Z> 0

***Source*:** Adapted from: Altman. Edward I and Paul Narayanan, business failure classifications model's: An international survey, Stern school of business, New York, 1996, PP 20.

Table 6: Bildebreek model analyses of bankrupt RCA Company.

Statement	Index	2016	2015	2014
X1	5,03X1	0,6082	0,6212	0,6033
X2	1,57X2	0,1388	0,3537	0,4043
X3	4,55X3	0,2033	0,1459	0,1458
X4	0,17X4	0,0693	0,1526	0,1663
X5	0,15X5	-0,0018	0,0090	0,0183
BILDERBEEK Z	/	1,0178	1,2824	1,338

***Source*:** prepared by researchers based on financial statements 2014-2016

Table 7: Differentiation between Kida models and Bildbreek models

Statement	Kida model	Bildbreek model	Good results	Bad results
2014	0,6651> 0,38	1,338> 0		×
2015	0,7187> 0,38	1,2824> 0		×
2016	-0,2613< 0,38	1,0178> 0		×

***Source*:** prepared by researchers based on financial statements 2014-2016.

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