

## Determinants of Bank Lending Policy in the Context of Yemen

Saleem Al-Akari<sup>1,\*</sup>, Chokri Slim<sup>2,†</sup>

<sup>1</sup>Department of Accounting, Amran University, Amran, Yemen

<sup>2</sup>Department of Accounting, University of Manouba, Tunis, Sana'a, Tunis

### Abstract

The objective of this study is to identify the determinants of bank lending policy in the context of Yemen. To achieve this goal we try to study the probability of lending investment companies through a number of explanatory variables included in the multivariate model (Discriminate Analysis Model), and in the artificial intelligence model (Artificial Neural Network). To study our problem, we collected forty (40) actual cases of investment credit from eight Yemeni banks (28 agreement cases, 12 rejection cases).

The two models have showed that the variable of guarantee has a significant influence on the decision-making process of bank lending policy. Decision makers in credit are based on a process of anticipation in the future. The findings indicated that most banks considered the type of guarantee as a key element to the success of lending decision, because, the guarantee is the best way for the bank to mulch the information asymmetries and to guard against the risk of non-repayment of loans.

**Keywords:** Bank lending policy, Financial statements, Yemen

**المخلص:** تهدف هذه الدراسة الى التعرف على العوامل المحددة للسياسة الائتمانية في البنوك اليمنية. ومن اجل الوصول الى هذا الهدف، قمنا بدراسة وتحليل المتغيرات من خلال استخدام نوعين من النماذج الإحصائية هما (تحليل النماذج المتمايزة) والآخر (الشبكات العصبية المصطنعة). ومن أجل دراسة واختبار مشكلة البحث، قمنا بجمع ٤٠ ملف فعلي لعدد من الشركات التي تقدمت بطلب الحصول على الائتمان البنكي (٢٨ ملف تمت الموافقة عليها، ١٢ ملف تم رفضها). نتائج الدراسة أظهرت أهمية متغير الضمانات المقدمة للبنوك للموافقة في الحصول على الائتمان، لأن البنوك اليمنية يعتمدون في قراراتهم على توقعاتهم وتقييمهم للمستقبل، وتعتبر هذه الضمانات أحد العناصر الهامة للموافقة على منح الائتمان البنكي، لأنها الطريقة الأفضل لتخفيض حالة عدم التأكد للمعلومات المحاسبية، وكذا وخطر عدم سداد العميل للدين في المستقبل.

### 1. Introduction

Financial statements play a key role in the assessment of credit risk. Indeed, the state of cash flow allows decision makers to estimate the distribution of future cash flow of the company to meet its commitments.

In all countries, the current finance is characterized by movements of the development and modernization of financial markets. Faced with intense competition or increasing the credit institution and especially the bank is ever more closely linked to all sectors of economic and social activity in the country (economy, finance, money, trade, industry, agriculture, etc.).

Because the financial sector in Yemen is not developed, the banks play an important role in the economy. The banking sector in any country is considered a vital and an important element for its impact on the country's economy through the different banking operations or through financial and economic indicators provided by the financial firms and banks annual financial statements which are considered as a main information resource for a big number of economic sectors including the investors (Vestine and Kule, 2016).

\*E-mail: [alaguarisaleem@gmail.com](mailto:alaguarisaleem@gmail.com)

†E-mail: [chokri.slim@iscae.rnu.tn](mailto:chokri.slim@iscae.rnu.tn)

Bankers need different information to properly assess the situation of the company customers. However, the latter does not provide timely information for such a decision of credit. For the evaluation of credit, commercial banks test the ability of the borrowing firm to meet its obligations to pay its debts when due in accordance with the contractual terms of credit, the judgment of the client's ability to pay its debts or credit risk requires that the credit manager estimates the probability distribution of future cash flows for the customer in question to service the debt.

Dorfman (1996) confirms the importance of cash flows. He explained that credit can be repaid from the future cash flows of the company. He also recognizes the importance of the ability of the company to generate a profit. But, he said a banker must always remember that the income statement is prepared in accordance with accounting principles that stand for a good credit analysis.

## 1. Literature Review and Hypothesis Development

### 1.1. Accounting Information's and Credit Decision

Accounting information's is important for banks in Yemen, it helps to make their credit decisions and it would help in highlighting the means of information disclosure that raised the confidence of the information statements.

The financial information highlights the financial position of any company in a specific date, and shows the extent of its efficiency in managing its money by revealing its financial operations, achievement and the change in its financial position from one accounting period to another (Ahmed *et al.*, 2006).

The role of accounting information is to allow the user to make a judgment about the situation of the company. However, decision makers in credit depend on a process of anticipation in the future. In this sense, accounting information disclosure must allow bankers to better predict some indicators considered of paramount importance as they give an idea about the company's ability to honor its commitments.

For the evaluation of credit demand, commercial banks test the ability of the borrower firm to meet its obligations to pay its debts when due in accordance with the contractual terms of credit. The judgment on the client's ability to pay its debts or credit risk requires that the loan officer or other officer responsible **for** credit estimates the probability distribution of future cash flows for the customer.

Harhoff *et al.* (1998), showed that these variables have an influence on the decision of bankers for lending to businesses:

- Business-bank relationship: A Business-bank has a significant influence on the decision-making process of bank lending.
- Ability to repay debt and debt coverage

Lefebvre (1992) concluded that any analysis of credit must necessarily begin with a thorough financial analysis from accounting documents namely the financial statements of at least three consecutive years.

The majority of researchers including Topsacalian (1990); Kaaniche *et al.* (1992); Mathé *et al.* (1997), Cole (1998); Foglia *et al.* (1998) agree to hold two large families of factors explaining the decision to grant credit facilities contained in the financial statements:

### 1.1.1. Financial Indicators

#### ▪ The Company's Liquidity

A good level of financial liquidity weighs heavily in the decision making process of bank lending, it reflects its ability to pay its debts when due. Kaaniche *et al.* (1992) argue that the liquidity situation of the company is a key element in the analysis of credit risk.

Empirically, Topsacalian (1990) showed that the liquidity of the company is one of the most influential criteria on the final decision of commitment credit analyst. To confirm this result, the researchers, first used a questionnaire and had identified a large number of evaluation criteria for bank credit files whose liquidity of the company. Guenther (1999), McNamara and Bromily (1993) concluded that financial analysis is the main component of the decision-making process of the banker and the ratios are the relevant to the decision taken; those of profitability, liquidity, debt and fund working capital.

In addition, we developed the first hypothesis as follows:

**H01: There is a positive relationship between the liquidity of the company and the success of banks lending decision.**

#### ▪ Financing and debt

A company is insolvent when the realization of its assets allows it to cover all its debts. Solvency is one of the three overarching objectives of financial analysis. Sharp and Sherrill (1994), showed that company is insolvent when the realization of all its assets does not allow him to cover all its debts.

Cole (1998) showed that the company's ability to repay its debts and to cover financial charges is a cornerstone of the decision to bank lending, since it reflects a certain level of financial health of the business itself. In terms of bank lending, Cole (1998), Charitou (1993), Dorfman (1996) agree on the positive impact of the repayment capacity of the business in the final bankers. This leads us to define this hypothesis as follows:

**H02: There is a positive relationship between the ability of the company to repay its debts and the success of banks lending decision.**

#### ▪ Profitability

A good level of profitability is likely to distinguish one company from another at the time of the final decision. This is also confirmed by Topsacalian (1990) establishes that the decision of the credit analyst offers, in addition to the financial structure of the overall profitability of the firm. He explain that profitability is the basis of successful completion of credits granted and to be granted since it conditions the ability of the borrower to make its repayment obligations. Cole (1998) showed that the most profitable companies are less risky than those that are not. We can therefore conclude that the profitability of the company is a financial indicator for the classic organization requesting bank loans and thus deserves to be highlighted by the bankers to make such a decision relevant.

Moreover, the hypothesis related to the profitability of the borrowing company is as follows:

**H03: The profitability of the company's helps the banks to make his credit decisions.**

### 1.1.2. No-financial indicators and decision of bank lending

#### ▪ Bank-Company's Relationship

Accounting information, however, is not the only information used during the review of an application for bank credit by a company. Because bankers have uncertain characteristics of borrowers when they make their budget requests and their future intentions reimbursement accounting information is insufficient to judge such a credit application. Bassouamina (2000) considers that the customer relationships established between banks and their customers are long-term relationships. They are based on the repetition time of credit relations. Cole (1998), companies whose applications are accepted has preexisting relationships with their longer-term future lenders. In addition, the variable "number of funding sources" reflecting the relative exclusive bank-firm relationship was negatively related to the probability of bank lending while being both statistically significant.

In addition, we can advance the following hypothesis:

**H04: The relationship between bank-company's has a positive effect on the bank lending decision.**

▪ **Guarantees offered by the borrowing company's**

The guarantees are the best way for the bank to mulch the information asymmetries and to guard against the risk of non-repayment of loans.

The banker will require more safety-of-hand business riskier borrower or those that require more control, to reduce agency problems and minimize the potential loss in case of default. Indeed, empirical studies tend to show that the presence of collateral is associated with risky borrowers (Berger and Udell (1990), Jimenez and Saurina (2004)). These guarantees are, most often, one of the following forms: the dune deposits individual; Mortgages on property management; Guarantees of legal persons; Mortgages on company assets; and Pledges (Rivaut-Danset (1991)).

One of the main features to get a bank loan from banks in Yemen is the presence of the warranty. This is to reduce agency problems and minimize the potential loss in case of default. Rivaut-Danset (1991) states that "all banking systems require sureties, the degree of formality of the safeguards required decreases with firm size, the degree of exposure and the power relationship between the bank and the company. Depending on the extent of risk, depending on the nature of the claim and customs, the bank will require the borrower collateral and guarantees and / or personal guarantees of personal or mutual.

**H05: There is a positive relationship between the guarantees offered by the borrowing company and the success of banks lending decision.**

## 2. Methodology

### 2.1. Sample Selection

Foreign studies have previously approached the issue of bank lending were based on samples collected from large databases considered by Cole (1998), Harhoff *et al* (1998) and Petersen *et al* (1994).

We used a sample of forty (40) business companies that have sought investment loans during the period 2007-2016, and that have been audited by an external auditor. The sample was divided into two groups: a group of companies having their credit applications accepted (28 cases) and a second group of companies having their credit applications rejected (12 cases). We chose this period because it is the most recent. The description of the sample is represented as follow:

Table 1: Description of the Sample

	Group of study	
	Agreement <sup>(1)</sup>	Rejection <sup>(0)</sup>
Number of cases of credit	28	12

1: a group of firms whose credit applications are accepted.

0: group of firms whose credit applications are rejected.

The selection of cases to be studied is conducted in accordance with the common service officials of credit. Unlike Harhoff *et al.* (1998) and Cole (1998), who are interested in companies belonging to various sectors of the economy. With this decision, we have tried to avoid the problems of heterogeneity of the population to better identify its common trends. The specific choice of investment credit is also justified by the importance of these credits as a means of business financing Yemenis.

## 2.2. Data Collection

A special feature of this study is that the collected data are real cases. These accounting data collected from eight banks: Arab Bank, International Bank of Yemen, Yemen Commercial Bank, National Bank Yemen, Tadhamon International Islamic Bank, Saba Islamic Bank, Yemen and Gulf Bank, Cooperativ and Agricultural Credit Bank.

## Definition and Measurement of Variables

We will in the following define the variables of interest in the present study and for each measurement instruments used in previous research while specifying those that we will use in this study or investigation, it is important report the existence of a multitude of measurement indicators for each variable of interest in the study. However, we are limited to ratios most frequently cited and used at the writer.

Variable	Label	Measure
Liquidity	LIQ.GLE	Current assets / Current liabilities
Profitability	TUX.REN	Net Income for the Year / Total assets
Debt and corporate finance	SOL.ENT	Total liabilities / Total assets.
Bank-Companie relationship	DUR.REL	Number of years since the entry into credit relationship.
The guarantees	GAR.OFR	1. If the guarantees requested by the responsible of credit; 0. If not

This study aims to identify empirically the determinants of bank lending policy. The dependent variable is the type of credit decision. This variable is a qualitative dummy (dichotomous). It will measure in a direct way, as in the study by Cole (1998).

The type of credit decision will be equal to: 1 If the credit application is accepted; 0 otherwise.

### 2.3. Study Models

It should be noted that statistical analysis can be performed by Statistical Package for Social Sciences (SPSS):

Altman (1968), applied for the first time the techniques of discriminant analysis to the study of financial ratios on a sample of 66 companies, including 33 who went bankrupt and 33 survived to predict business failures.

Altman (1968) developed the prediction function as follows:

$$Z = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5$$

In our study, the model can be expressed by the formula:

$$Z_i = a_0 + a_1 LIQ.GLE_i + a_2 FIN.PRO_i + a_3 SOL.ENT_i + a_4 GAR.OFR_i + a_5 DUR.REL_i + \text{terme d'erreur.}$$

a0: constant model, I: the coefficient associated with the variable i.

**with:**

Z i: It is a dependent variable that takes two values:

1: If the demand for bank lending is accepted and

0: If not

LIQ.GLE: overall liquidity; SOL.ENT: the solvency of the company; FIN.PRO: the rate of return; DUR.REL: the duration of the bank-firm; GAT.OFR: the guarantees provided by the business borrower.

### 3. Data Analysis and Empirical Results

In terms of bank lending, the criteria for assessments of credit application are diverse. Indeed, there is no standard methodology or precise reasoning in the decision of the bank. The univariate analysis is necessary to distinguish between quantitative and qualitative variables.

Table 2: Descriptive Statistics Variable BLD

	Frequency	Percent
Rejection	12	30%
Agreement	28	70%
Total	40	100%

From these results we see that 30% of our sample has not received a bank loan. This analysis allows us an idea about the number of demands that accepted (70%). To know this problem, we will continue to analyze and interpret other variables.

Table 3: Descriptive Statistics of the Liquidity

Variable	Decision of the Bank	Number of observation	Mean	Ecart-type
Liquidity ratio	0	12	5,223917	8,7430952
	1	28	2,980214	2,4176613
Total		40	3,653325	5,1663692

Average rate of liquidity ratio is good enough (3.6533). This means that the level of liquidity of company wants to get a bank loan. We are dividing our sample into two (group of firms that have received a favorable decision and firms that have not received a favorable decision credit). This result can be explained the company that has a high level of liquidity has a positive credit decision.

Table 4: Descriptive Statistics of Financial Profitability and Solvency

Variable	Decision of the bank	Number of observation	Mean	Ecart-type
Financial profitability	0	12	0,217132	0,3916417
	1	28	0,278036	0,7563588
Solvency ratios	0	12	0,538483	0,3031258
	1	28	0,614414	0,2552104

Regarding the profitability and solvency, we note that these firms that have obtained a bank loan, the rates of profitability and solvency was 0.278036 and 0.614414 successively. it is remarkable that the firms that have benefited a bank loan have a higher average than other firms which their applications were rejected.

Table 5: Descriptive statistics of the relationship banking company's

Variable	Decision of the bank	Number of observation	Mean	Ecart-type
Relationship banking - Company's	0	12	5,83333	4,2817442
	1	28	4,25	3,3291641
Total		40	4,725	3,6584115

The relationship between business company's and banking is very important. However, in the primary analysis, we find that this relationship is not an important as the theoretical expectations.

In this regard, we note that the majority of our sample firms maintain relationships with enough supported banks. Indeed, the firms that have relationships with banks can go up to average 4.725 years. On average, the relationship between banks and firms for the first group of companies reached 5.83 against 4.25 years for the companies that did not received bank loan.

Table 6: Descriptive statistics of the guarantees provided by the company

Variable	Decision of the bank	Number of observation	Mean	Ecart-type
The guarantees	0	12	0,416667	0,5149287
	1	28	1	0
Total		40	0,825	0,3848076

Regarding the guarantee, we note that 82.5% of companies wanted to get a bank loan and 17.5% of this firms do not provide guarantees.

The guarantee is an essential element in Yemen, to qualify for a bank loan. In another sense, we note that some companies have not presented guarantees, and could not get a bank credit. And we note that five firms (0.416667 \* 12) provide guarantees, but are not able to take advantage of credit. This observation can be explained by several reasons.

Table 7: Comparison of average test.

	Wilks' lambda	F	Sig.
Liquidity	0,959	1,609	0,212
Profitability	0,998	0,069	0,794
Solvency	0,983	0,665	0,420
Guarantees	0,505	37,240	0,000***
Relationship	0,960	1,598	0,214

From the comparison test, we note that the average value of W is very close to 1 and all the variables studied except for the guaranteed variable. The W value of the latter variable is 0.505 and is significant at 5%.

Table 8: Pearson Correlation Test between the Variables.

		Liquidity	Profitability	Solvency	Relationship
Liquidity	Pearson Correlation	1	.549**	-.069	-.125
	Sig. (2-tailed)		.000	.671	.443
	N	40	40	40	40
Profitability	Pearson Correlation	.549**	1	-.041	-.124
	Sig. (2-tailed)	.000		.800	.447
	N	40	40	40	40
Solvency	Pearson Correlation	-.069	-.041	1	.057
	Sig. (2-tailed)	.671	.800		.729
	N	40	40	40	40
Relationship	Pearson Correlation	-.125	-.124	.057	1
	Sig. (2-tailed)	.443	.447	.729	
	N	40	40	40	40

Table 9: Test of Significance of the Explanatory Variables.

	t	Sig.
Liquidity	-0.473	0.640
Profitability	0.582	0.565
Solvency	0.544	0.590
Garantee	4.422	0.000***
Relationship	-0.941	0.354

From the results presented in Table (9), there is only one variable that has a significant impact on the decision credit bankers. Indeed, in the context of Yemen , the guarantee given by the firms is an essential element to benefit the loan.



Table 10 Estimation of the Model:

Model 1	Unstandardized Coefficients		T	Sig.
	B	Std. Error		
(Constant)	0.085	0.274	0.309	0.759
Liquidity	-0.007	0.015	-0.473	0.640
Profitability	0.051	0.088	0.582	0.565
Solvency	0.155	0.285	0.544	0.590
Garantee	0.794	0.179	4.422	0.000***
Relationship	-0.019	0.020	-0.941	0.354

The result of the parameter estimates table shows that the coefficient is positive and statistically significant at 1%. This result means that the guarantee is a key element to minimize the risk of default; it has a decisive role in the final credit decision in the Yemen context

Table 11: Quality Model

Model	R	R square	Adjusted R square	Std. error of the estimate
1	0.723 <sup>a</sup>	0.523	0.400	0.359

a. Prediction: (Constant), Quality, Profitability, Guarantees, Relationship, Liquidity, Report Solvency.

From the results presented in the eleventh and thirteenth table we note that, there is only one variable that has a significant impact on the bank lending decision, the model quality is (R = 72.3% and an R square of 52.3).

Table 12: predictive Power of the Model.

DBC		Prediction Model		Total	
		0	1		
Actual Observations	Number	0	7	12	
		1	0	28	
	%	0	58,3%	41,7%	100%
		1	0%	100%	100%

• Number of correct classified cases is 87. 5%

From the results obtained, our model can better classify the firms that received bank loan than that companies that have not been able to get these loans. The model correctly classifies 58.3% of firms that did not receive the credit.

Table 13. Good Results by Banking- Firms Neural Networks

		N	Percent
Sample	Group 1	30	75.0%
	Group de test	10	25.0%
Valide		40	100.0%
Exclus		0	
Total		40	

The linear discriminate analysis has given the processed data rate of 100% correct classification for the firms that benefited from bank loans and 58 3% for the firms that could not get bank loans.

Indeed, the comparative study of two methods, namely (discriminate analysis, and the method based on artificial neural networks (ANN), gives the superiority of neural networks.

discriminant analysis	Artificial Neural Networks
Classification Results	Classification Results
87,5%	100%

Table 14. Result of the importance of independent variables

	Importance	Normalized Importance
Liquidity	0,144	42,1%
Profitability	0,135	39,7%
Solvency	0,028	8,2%
Guarantee	0,341	100,0%
Relationship	0,261	76,4%

From the above table we see that the Guarantee is the most important variable, followed by, the relationship between the bank and the company, the liquidity of the company and ultimately, and the profitability of the company.

Table 15. Outcome predictive power of neural networks

Sample	Observation	Prediction		
		0	1	%
Group 1	0	10	0	100
	1	0	20	100
	%	33,3%	66,7%	100
Group 2 (test)	0	2	0	100
	1	0	8	100
	%	20%	80%	100

As the above table shows, the prediction rate of the model is 100% for both groups and for both types of decisions.

Table 16: Descriptive Analysis by Neural Networks

Neural Networks	Number of Layers	Number of Layers Hidden	Error of the Training Sample	Error Sample Test	Classification
	3	1	0,019	0,111	100%

Our network has an optimal minimum mean square error 0019 (performance of 98.1%) and an error in the test sample 0, 111 (performance of 88.9%).

**Conclusion**

The purpose of this study was to establish the factors that influence on demand of credit loans in Yemen. We tried in this study to apply discriminate analysis as a tool for credit scoring in the first instance and then the approach of the artificial neural network in a second time. We conducted a comparative analysis of these two techniques. We used a sample of forty (40) business companies that have sought investment loans during the period 2007-2010. The sample was divided into two

groups: a group of companies having their credit applications accepted (28 cases) and a second group of companies having their credit applications rejected (12 cases).

Statistical analysis showed that the Yemeni bankers attach importance to the guarantees. Indeed, a company that offers more guarantees will be fortunate to have the loan. The findings indicated that most banks considered the type of guarantees as an important factor for the banks to the success of the lending decision.

### Recommendations:

On the basis of the findings of the study, the following recommendations can be made:

First, the interested institutions as the banks need to adopt the international accounting standards' requirements to fit the Yemeni legislations and laws.

Second, the coordination between the Central Bank of Yemen, the Yemeni accountants association, the banks and any other concerned entity to establish an independent website that includes all the information as well as all type of institutions.

Third, it is important for the banks to share credit because it will minimize the risk of default.

In general, the disclosure of financial statements in Yemen, did not reach the required level due because the absence of local standards and the failure to apply the international standards, therefore, we commend to activate the accounting standards, so that the auditing gains the confidence.

### References

- Ahmed, A. S., Kilic, E., and Lobo, G. (2006), "Does Recognition versus Disclosure Matter? Evidence from Value-Relevance of Banks Recognized and Disclosed Derivative Financial Instruments», *The Accounting Review*, 81, 567-588.
- Altman *et al.* (1998), "Credit risk measurement: developments over the last 20 years"; *Journal of Banking and Finance*; vol. 21; pp. 1721-1742.
- Bassouamina, J.M. (2000), "Rationnement du crédit : une réponse à l'imperfection de l'évaluation du risque de crédit", *la revue du financier*.
- Berger A. and Udell G.(1990), " collateral, loan quality and bank risk", *Journal of Monetary Economics* 25,PP. 21-42.
- Charitou A., Clubb C., (1999), "Earnings, Cash flows and security returns over long return intervals: Analysis and UK evidence", *Journal of business finance and accounting*, (Juillet), p 283.
- Charitou, A. (1993), "An analysis of the components of the cash flow statement:the case of the Campeau corporation", *Journal of Commercial lending*, Vol.75, N.5, p.33, janvier.
- Chokri S. (2007), "Fuzzy Neural Model for Bankruptcy Prediction" *The Journal of Business Review Cambridge*, Vol. 8, Num. 2, December 2007, 117-122.
- Coats, P. K., Fant, L. F. (1993), "Recognizing Financial Distress Patterns Using a Neural Network Tool", *Financial Management*, vol. 22, n° 3, pp. 142-154.
- Cole, R.A. (1998), "The importance of relationships to the availability of credit", *Journal of Banking and Finance*, Vol.22, pp. 959-977.
- Dorfman , D. (1996) " A lender's guide to lending excellence", *The Journal of Lending and Credit Risk Management*, Vol.78,N.9,p.21.
- Fedhila(1998), " Alogit model using cashe flows information to predict loan delinquency", *journal of accounting business and insurance*.
- Fialeau, B. (1993), "Histoire des modèles empiriques de prévision de défaillance: un essai de classification", *comptabilité et nouvelles technologies*, Association Française de comptabilité, Congrès de Toulouse.

- Foglia, A., Lavio, S. et Reedtz, P.M (1998), "Multiple banking finance, relationships and fragility of corporate borrowers", *Journal of Banking and Finance*, Vol.22, pp.1441-1456.
- Gosh, S. Collins, E. and Scofield, L. (1990), "Prediction of mortgage loan performance with a multiple neural network learning system, proceeding of Eurasip", *Workshop, Sesmbra, Portugal*, P.439.
- Gronseth and et al (1999), "Financial statements: what do today's commercial lenders want?", *The Journal of Lending and Credit Risk Management*; vol. 82; n° 4; p. 66.
- Gunther, H.P. (1999), "Bank credit evaluation procedures and the development of a secondary market for C and I loans", *American Business Review*, Vol, 17, N.1, pp.25-31, janvier.
- Harhoff, D. and Körting, T. (1998), "Lending relationships in Germany: Empirical evidence from survey data", *Journal of Banking and Finance*, vol.22, pp.1317-1353.
- Helal, M. (1994), "le risque crédit et la défaillance d'entreprise : une présentation théorique et une évaluation empirique", *finance et Développement du Maghreb*, N.13, pp.66-96, janvier.
- Kaaniche and et al (1992), "La perception de la performance de l'entreprise chez les banques tunisiennes à travers les critères d'octroi de crédits"; *Acte de congrès de l'équipe de recherche en gestion de la F.S.E.G de Sfax*.
- Lasalle R.E, Randall, A. Aanadarajan and Asokan. (1997), "Bank loan officers reactions to audit reports issued to entities with litigation and going concern", *Accounting horizons*, vol.11, pp.33-40.
- Mathé, J.c. and Rivet, A. (1997), "De nouveaux critères d'octroi de crédits aux PME", *Direction et Gestion des entreprises*, N.164-165, pp.35-40, Mars et Juin.
- Matoussi, H. Abdelmoula Krichene, A. and Maghrebi, F. (2006), "Evaluation du risque des crédits de gestion par la fonction score le crédit scoring: une application empirique auprès d'une banque commerciale tunisienne", *Les sixièmes journées internationales de la recherche en sciences de gestion*
- MC Namara, H. and L. Bromily. (1993), "Research Report: assessing the Risks of small Business Borrowers", *Journal of commercial Lending*, October, P 23
- Ongena, S. (1999), "Lending relationships, bank default and economic activity", *International Journal of the Economics of Business*, Vol.6, N.2, pp.257-80, juillet.
- Petersen M.A., Rajan R. (1994), "The Benefits of Lending Relationships: Evidence from Small Lending Business Data", *The Journal of Finance*, vol. 49, p. 3-37.
- Rivaud-Danset D. (1991), "La relation banque-entreprise: une approche comparée", *Revue d'Économie Financière*, n° 16, p. 105-118.
- Sharp, G and Sherrill, L. (1994), "Advanced credit analysis", *senior seminar delivered bay Citicorp Institute for Global finance*, juillet. .
- Soltani B. (1996), "Opinion of bankers and financial analysts on information contents of accounting and audit reports", *papier présenté au 17ème congrès de l'Européen Accounting Association*, Venise page 20.
- Spiliotis and et al (1998): "The determinants of commercial bank's lending behavior: some evidence for Greece", *Journal of Post Keynesian Economics*; vol. 20; n° 4; pp. 649-674.
- Tam, Y. et M.Y Kiam.(1992), " Managerial applications of neural networks : the case of bank failure predictions", *Management science*, Vol.38 n°7, juillet . P 926-947.
- Topsacalin, P. (1990), "Engagement de crédit : décision objective ? ", *Revue du Financier*, N.77, pp.40-48, Novembre.
- Vestine, M., and Kule, J.W. (2016), "Effect of Financial Statement Analysis on Investment Decision Making", *A Case of Bank of Kigali. European Journal of Business and Social Sciences*, 5, 279-303.