

## Imperfect Financial Information and Access to Bank Credit for Agricultural Enterprises in Togo

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**Abstract:** *The main objective of this paper is to show how the bank manages to overcome the insufficiency, unreliability and imperfection of financial information to adapt its credit supply policy to the financing needs of agricultural enterprises in Togo to limit the risk of default. To achieve this objective, we leaned towards a quantitative methodology by following a hypothetico-deductive approach in an arranged positivist posture. The results obtained come from a survey of the fourteen commercial banks established in Togo. These results show that the banks' credit policy is of a multidimensional construct which is determined by axes linked to the viability of the investment to be financed, to the agricultural enterprise's commitment to legality and to Risk sharing. Our research suggests the definition of a global legal and regulatory framework adapted to the specificities of the agricultural sector.*

**Keywords:** Credit Policy, Credit Rationing, Financial Imperfection, Information Asymmetry

### 1. Introduction

Agriculture, which provides the majority of food needs and employment for people in developing countries in general and in Africa in particular, is often given high priority in development strategies. In rural areas and in African countries, about 70% of the population is engaged in agricultural activities, either for subsistence or for commercial exploitation (World Bank, 2008).

In Togo, for example, the last ten years have seen a 9.4% growth in agricultural production and its commercialization (ECOWAS, 2019). This dynamic is the result of the implementation of agricultural policies oriented towards the development of agropoles and the promotion of agricultural value chains. In response to this new policy orientation, private initiatives have been implemented to add value to the agricultural production of farmers who, initially, produced for the food needs of their households, by encouraging them to produce for a remunerative market, thus juxtaposing food agricultural production with market production.

To achieve this, the actors in the value chain need financing (credit). Thus, throughout its life, the agricultural enterprise must find financing solutions for its different needs.

The financial literature has shown a hierarchy in the choice of financing for its enterprises. It starts with self-financing, then debt and ends with access to the market, the use of which is the lowest Torrès (2011). In the absence of sufficient own resources, these enterprises turn to financial institutions, particularly banks, whose criteria for assessing credit applicants are based for the most part on financial information in their decision to grant credit. Despite the diligence of these value chain actors, the amount of credit granted to the agricultural sector in Togo remains below 2% and therefore insufficient to meet expectations (ECOWAS, 2016).

There are many reasons for this, and the ones often mentioned by lenders remain the quality of the financial information produced and the financial and commercial capacities of agricultural SMEs. Faced with this lack of information, lenders ration credits or impose conditions (real guarantees, financial guarantees and high interest rates) to avoid falling victim to adverse selection and moral hazard problems that jeopardise the expected profit on their credit activity Rocha et al (2011).

The general objective of this research is to show how the bank manages to overcome the imperfection of financial information to adapt its credit supply policy to the financing needs of agricultural enterprises in Togo in order to limit the risk of default.

The two (02) hypotheses that are put forward to serve as a roadmap for this research are

- **H<sub>1</sub>**: Identify the financial data that influence the bank's decision to grant credit to agricultural enterprises;
- **H<sub>2</sub>**: Regulatory and prudential frameworks and knowledge of the agricultural sector influence the provision of credit to firms operating in the agricultural sector.

This research is of threefold theoretical, managerial and methodological interest. With regard to the theoretical interest, this research aims to contribute to the financial literature on theoretical models likely to reduce information imperfections in credit relationships. At the managerial level : our results could enable the managers of agricultural enterprises to have a better insight into the enterprise-bank relations in the process of evaluating their credit file in order to make optimal choices on the information and management systems with a view to producing and disposing of quality information in order to limit the information asymmetries on their activities and finally on the methodological level Our research will have the merit of approaching the econometric model by the method of Principal Component Analysis (PCA) due to the fact that all our variables are quantitative in order to establish the link between the axes of the credit policies of the banks and the financial variables of our research for making decisions to grant credit.

The remainder of this article is structured as follows: based on the following literature review (section 1), we present the methodological framework (section 2) and proceed with the empirical analysis, presentation and interpretation of the results (section 3), ending with a conclusion.

## 2. Theoretical and Empirical Review

The body of knowledge in assessing this assertion is as follows:

**Theoretical Analysis:** To overcome the insufficiencies and imperfections of information in the credit relationship, the financial literature proposes a set of models, namely: models with financial signals through the borrower's personal contribution (Leland et al, 1977), the financial structure of the firm (Ross, 1977 and Cabane, 2008), the general solvency of the borrower (Corhay, 2008), the level of indebtedness (Cormier, 1997; Cordier et al., 1998; and Genaivre, 2011), dividend payments (Bhattacharya, 1979) and models with incentive mechanisms taking into account guarantees (Chan et al., 1985; Bester, 1987; Wette, 1983) and the customer relationship (Diamond, 1989, 1991).

**Empirical Analysis:** Several works have focused on the variables used by banks to facilitate access to credit for businesses (Buckley, 1997; Stiglitz, 1999; Zinman, 2014 and Wahidi et al., 2016), etc. All these authors inform that SMEs are characterized by a high degree of informality, lack of collateral, smallness of their credit (Bester, 1995 and Tadesse, 2009). All these characteristics, combined with the asymmetric environment in which these units operate, only increase the reluctance of financial institutions to deal with these SMEs. To overcome these imperfections, several theoretical and empirical models are used by banks to limit the risk of default by companies.

**Financial Signal Models:** Financial signaling models are those in which promoter-borrowers, better informed about their projects, seek to signal to lenders the true characteristics of their businesses. Common financial signals in the literature include the financial structure of the business (Ross, 1977), the extent of the promoter's personal capital contribution to the business (Leland et al., 1977), and the extent of dividends paid to shareholders (Bhattacharya, 1979, 1980; Kalay, 1980).

**Financial Structure Analysis:** The best known work on the financial structure aspect as a means of limiting the risk of borrower default is that of Ross (1977). Contradicting the theorem of Modigliani et al (1958) on the indifference of the financial structure on the value of the firm, Ross shows that managers define the type of firm they run by the financial structure they give it. The question is to measure the risk of insolvency, which amounts to assessing the ability of a firm to meet its financial obligations. The financial variable used here is the repayment capacity of agricultural enterprises. Cabane (2008), specifies that the major characteristics of the financial health of the enterprise for the banker are: solvency, the level of indebtedness and the economic risk.

**General Solvency:** The bank focuses its analysis on the company's ability to cover its debts using its assets: this is called general liquidity. Three ratios can be used to measure solvency.

- A general liquidity (GL) ratio is defined as the ratio of current assets to current liabilities, which summarizes the short-term financial balance. The higher the ratio is above 1, the higher the Working Capital (WC) and the more likely current assets are to cover short-term operating debts (BRF);
- A ratio of relative liquidity (current assets-inventories)/short-term debts, known as conservative, because it excludes inventories whose liquidity is considered uncertain;
- A ratio of immediate liquidity (cash and marketable securities)/short-term debts, which is less relevant because of the strong fluctuations of cash items Corhay (2008).

The Central Bank of West African States (BCEAO) prescribes the use of the general liquidity ratio for banks.

**Debt Level:** It is an important aspect of the financial situation as it can hamper the company's ability to repay additional debts Genaivre (2011). Thus, the bank must ensure that the company is not so over-indebted that its assets cannot cover all its liabilities.

The Central Bank of West African States recommends the following debt ratios:

- The financial autonomy ratio (AFI), which is equal to the ratio of equity to total liabilities in the balance sheet, as a percentage, and which measures the company's capacity to incur debt. Its minimum standard is set at 20%;
- The repayment capacity ratio (financial debts/self-financing capacity) which allows the estimation of the number of years in which the company can generate internal resources to meet its repayments. Its maximum standard is 4, which means that the company must have at most four years to repay its long-term debts;

These debt ratios are useful, but have important shortcomings, particularly for long-term financing, as they do not take into account the burden of interest and capital repayments (Cormier, 1997).

**The Personal Capital Contribution Held by the Promoter:** The reference model in this respect is the one proposed by Leland et al (1977). It is a simple equilibrium model of capital structure and firm valuation. Leland et al. show that the promoter's personal contribution to the project can serve as a signal of project quality, since the value of the firm increases with the proportion of the promoter's shareholding in the firm's capital. Thus, there would be a positive and significant relationship between the value of the firm and the personal capital contribution held by the operator in his project.

**Dividends to Shareholders:** The main works on dividend policy as a signal of the type of firm involved are those of (Kalay, 1980 and Bhattacharya, 1980). Starting from the idea that imperfect information is related to the fact that shareholders do not know exactly the profitability of the firm, Bhattacharya (1979) identifies two costs associated with the signaling activity: the cost of taxing dividends in excess of capital gains and the cost of the debt incurred by the manager to honor his commitments to shareholders, in case the promised dividends are higher than the firm's profits. In contrast, Bhattacharya (1980) abandons the tax aspect as a costly disincentive.

**Incentive Mechanisms:** Incentive-based models are those in which the creditor introduces elements into the loan contract that encourage the borrower to disclose his or her quality. These include collateral, interest rates and customer relationships.

**Guarantees and Interest Rates:** Access to bank credit is often conditioned by protective measures instituted by the banks. These measures relate in particular to the remuneration of the cost of the loan, the guarantees offered by the agricultural enterprises and the recent or distant customer relationship with these agricultural enterprises.

With regard to guarantees, several authors have made them the subject of their studies. The main contributions are those of Wette (1983), Besanko et al (1985), Chan et al (1985), Stiglitz et al (1985), Bester (1987) and Chan et al (1987). In almost all these models, the authors base their arguments on the two powers of the guarantee, namely a deterrent power, which limits moral hazard, and a self-selective power, which reduces adverse selection.

The guarantee and the interest rate are considered here as a cost insofar as a higher risk would correspond to a higher guarantee and/or interest rate. Regarding the deterrent power, the requirement of high guarantees by the lender would oblige the borrower not to divert the credit obtained to uses other than the initial project.

As for self-selection, the high collateral and interest rates required by the lender lead only high-risk borrowers to apply for credit, as less risky borrowers simply withdraw from the market.

**Customer Relations:** Financial theory also proposes the establishment of customer relationships as a means to control borrower risk. The idea is to use the long-term relationships that can develop over time between the creditor and borrower to reduce moral hazard and adverse selection. These relationships are based on the observation of the borrower's behavior over time and are based on the commitments, promises and trust of the contracting parties. Very often, the aim is to link or make the debtor's behavior temporally or intertemporally consistent. These relationships can be based on two types of contracts: implicit contracts and explicit contracts.

**Other Financial Variables from the Exploratory Study:** The exploratory study carried out proved that in addition to the financial variables previously revealed by the literature, banks use other financial variables such as: the profitability of the investment to be made, the monitoring of the firms' outstanding loans vis-à-vis other banks in the banking sector (Centrale des risques or Bureau d'information du crédit), the level of the firm's commitment to suppliers, the regular payment of the firms' contributions to the CNSS and the regular payment of taxes to the tax authorities by the firms.

**The Profitability of the Investment:** Investing is a strategic decision for a company and an opportunity for the bank. It is therefore necessary for the banker to ascertain the expected profitability of the project before making this decision. To assess the profitability of the investment, the banker will calculate the net present value (NPV), which is the sum of the discounted net cash flows minus the amount of the initial investment. An investment is therefore profitable when the NPV is positive. The profitability index makes it possible to evaluate the amount obtained per CFA franc invested. The investment is profitable when the profitability index is greater than 1.

**Monitoring the Outstanding Amounts of Companies:** Financial institutions take information about their clients through intermediary relationships. This information is often stored in a database and used in the assessment of the creditworthiness and risks of their customers when they are applying for loans. In the case of a new applicant, the bank is likely to investigate itself to find out more about his or her financial situation. The process of investigating new applicants to gather information for the assessment is costly. Often, the bank requires collateral to reduce the information asymmetry in getting applicants to reveal private information about themselves and to protect itself against the risk of non-reimbursement.

The importance of access to information to improve the efficiency of institutions and reduce the costs associated with granting credit leads to the formalization and institutionalization of information sharing and promotes the emergence of credit information systems (Miller, 2003). These systems increase transparency in the credit market by providing a clearer picture of the type of loan applicant, allowing lenders to optimize the returns on their portfolios.

**The Company's Level of Commitment to Suppliers:** The solvency of companies is their capacity to repay, in the short or long term, their debts to banks, suppliers or the State. To ensure this situation, the banker examines the level of the company's commitment to suppliers to assess the company's ability to honor its commitments.

**Regular Payment of Company Contributions:** These are regulatory requirements in Togo. Bankers must ensure before entering into a credit relationship that companies have a tax certificate that testifies to their up-to-date situation with regard to the tax authorities. The same applies to certificates from the CNSS.

### 3. Methodology

This session presents the methodological approach, the empirical framework, the justification for the choice of variables and the study sample.

**Presentation of the Epistemological and Methodological Approach:** In management science, most researchers opt for the epistemology that includes three main paradigms: the positivist paradigm, the interpretativist paradigm and the constructivist paradigm.

In the context of our research, our problem being explanatory and causal in nature, specialists in research methodology agree that in such a situation, a quantitative methodology is more recommended. We are therefore situated in the positivist paradigm, having followed a hypothetical-deductive approach which consists of making a judgment on the relevance of the hypotheses initially presented.

This methodological approach allows us to retain as analytical models, descriptive analysis, supplemented by factorial analysis in multidimensional analysis through the method "Analysis by Principal Components" (PCA) on the explanatory variables of the credit policies of banks, considered as the inertia that these variables can explain.

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**Empirical Model:** To achieve the objective of our research, we use the quantitative exploratory approach focusing on seventeen explanatory variables related to the Axes of banks' credit policies such as "Axis viability of the investment or activity to be financed", "Axis commitment of the agricultural enterprise to legality" and finally "Axis focused on risk sharing between the bank and the agricultural enterprises".

Principal component analysis (PCA) was used to determine each of these variables which are the indices associated with each of the bank's credit policy axes.

The choice of credit policy axes or principal components is made according to a threshold corresponding to the minimum percentage of inertia that we wished to reproduce. For this purpose, we retained the number  $q$  of axes necessary to reach this threshold, which we set at least at 80%. This threshold is equal to the ratio between the sum of the eigenvalues and the trace of the variance-covariance matrix of the vector space considered  $W$ .

It is given by the following formula:

$$IW = [(\lambda_1 + \lambda_2 + \dots + \lambda_q) / \text{trace } V] \geq 80 \% (\dots)$$

where :

- $\lambda_1 + \lambda_2 + \dots + \lambda_q$  represent the eigenvalues;
- $V$  represents the variance-covariance matrix of the individual-variable matrix;
- $IW$  represents the inertia explained by each of the explanatory variables.

The inertia is also called the contribution of the variable to the formation of the analysis axis (or the cosine squared).

**Data and Sources:** With regard to our objective and the methodological approach adopted, the data collected is of a quantitative nature centred on an explanatory analysis. The data is collected by means of a questionnaire finalized following a face-to-face interview with the managers responsible for implementing the banks' credit policies and the banks' financial managers. Once finalized, the questionnaire was administered electronically to the banks' managers and officers.

The banks selected for our research are all the credit institutions on the list published by the BCEAO as of 31 December 2021. These banks are all located in Lomé. There are fourteen (14) credit institutions, including eleven (11) subsidiaries, three (3) branches and three (3) financial institutions of a banking nature.

At the end of the survey, twelve (12) credit institutions responded, two (2) banks did not respond out of the fourteen (14) banks and the three (3) financial institutions of a banking nature did not respond because they do not distribute credit. In total, more than 70% of our sample of credit and financial institutions responded to the questionnaires administered to them.

#### 4. Results and Discussion

This session analyses the results of the estimates delivered by the PCA method.

**Multivariate Analysis Using PCA:** To interpret the tables below following the PCA analysis, we have three (3) criteria to retain the axes of interpretation which are: Kaiser Criterion, elbow criterion and 70% or 80% criterion.

**Table 1: Variable-factor correlation (without the long term)**

Active variables	Correlations of active variables with factors			
	Axe 1	Axe 2	Axe 3	Axe 4
APP	0,52	-0,06	0,75	-0,01
AFI	0,77	-0,03	0,39	0,22
RI	0,96	-0,14	0,09	0,13
DVA	0,26	0,58	0,29	-0,68
VGA	0,96	-0,14	0,09	0,13
CRE	0,96	-0,14	0,09	0,13
NEF	0,54	0,58	-0,44	0,10
NEC	0,89	0,07	-0,34	-0,06
VCNSS	0,30	0,81	0,35	-0,09
PFISC	0,44	0,78	0,01	0,23
LG	0,89	0,07	-0,34	-0,06
FR	0,89	0,07	-0,34	-0,06
BFR	0,74	-0,24	-0,42	-0,39
CA	0,96	-0,14	0,09	0,13
RF	0,96	-0,14	0,09	0,13
AssAg	0,60	-0,54	0,20	-0,46

Source: Author from survey data, 2021

**Table 2: Variable-factor correlation (with long-term relationship)**

Active variables	Correlations of active variables with factors			
	Axe 1	Axe 2	Axe 3	Axe 4
APP	0,50	-0,09	0,75	0,04
AFI	0,76	-0,06	0,42	-0,21
RI	0,95	-0,16	0,14	-0,14
DVA	0,26	0,56	0,32	0,68
VGA	0,95	-0,16	0,14	-0,14
CRE	0,95	-0,16	0,14	-0,14
NEF	0,55	0,59	-0,37	-0,13
NEC	0,91	0,08	-0,32	0,06
VCNSS	0,30	0,80	0,39	0,10
PFISC	0,44	0,78	0,07	-0,23
RPA	0,91	0,08	-0,32	0,06
LG	0,91	0,08	-0,32	0,06
FR	0,91	0,08	-0,32	0,06
BFR	0,75	-0,23	-0,41	0,37
CA	0,95	-0,16	0,14	-0,14
RF	0,95	-0,16	0,14	-0,14

AssAg	0,59	-0,55	0,20	0,46
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Source: Author from survey data, 2021

**Discussion of the Results:** This session discusses the results obtained from the different analyses between the explanatory variables and the banks' credit policy axes.

**The hypothesis H<sub>1</sub>:** according to which financial data influence the decision to grant credit to firms operating in the agricultural sector is validated, as the relationship is statistically significant with the information variables defined according to each bank's credit policy axis.

Indeed, from the test on the financial variables except for the long-term relationship, it appears that axis 1 or first principal component can be interpreted as the axis of the viability of the investment to be financed or the viability of the activity to be financed. This is confirmed by Table 51 of the correlations where the variables RI, VGA, CRE, CA and RF respectively the profitability of the investments (RI), the value of the guarantees provided (VGA), the Borrower's Repayment Capacity (CRE), The risks linked to the agricultural sector (climatic and pathological risks) and the risks linked to volatility (of the commodity prices on which the calculations were made for the granting of the credit), which are well represented on the circle of figure 2 in appendix 1, are the most correlated with axis 1 and whose correlation coefficient is 0.96.

In addition, bankers also take into account the variables LG, FR, NEC and WCR, respectively General Liquidity, Working Capital, the Level of Commitment of the enterprise vis-à-vis the Central Risk Office of the BCEAO and the Working Capital Requirement in their credit policy applied to enterprises. These variables have a correlation coefficient of 0.89 for the first three variables (LG, FR and NEC) and 0.74 for the WCR.

This result shows that the credit policy or offers of the banks is a multidimensional construct taking into account several financial variables which influence the decision to grant credit and confirms several works carried out in particular those of Cabane (2008) and Corhay (2008) which estimate that solvency is measured by the ratio of solvency and financial health of the company.

The second main component (axis 2) or second axis of the banks' credit granting policy can be interpreted as "the commitment of the agricultural enterprise to legality". This is reflected in the strong positive correlation of the variables VCNSS (regular payment of social contributions to the CNSS) and PFISC (regular payment of taxes to the tax authorities) with axis 2 of figure 1, according to the correlation coefficient which is : 0,81 ; 0,78.

Although banks are required by the State to ensure that they have a certificate of tax regularity issued to companies at the time of the customer relationship, when collecting information, bankers informed us that they are unable to gather reliable information on the payment of taxes and social debts.

The third principal component (axis 3) can be interpreted as the "importance of the borrower's assets" (enterprise operating in the agricultural sector) or the "risk sharing" of the banks' lending policy to enterprises. This is reflected in the strong positive correlation of the variable APP (promoter's personal contribution) with axis 3 of Figure 1 in Annex 1.

This result reveals that the personal contribution is a determining factor in the banker's decision. This position is supported by the financial autonomy (AFI), the value of the guarantee provided (VGA) and the agricultural insurance (AssAg) by the enterprise evolving in the agricultural sector whose correlation coefficients, positive and significant, are respectively 0.77; 0.96 and 0,60. These results corroborate the work of Genaivre (2011) and Cormier (1997) on the consideration of financial autonomy ratios (AFI), the borrower's ability to repay, in the banker's decision.

As for the test with the long-term relationship taken into account, we note that the main component (axis 1) maintains the same result. This is supported by the customer relationship variable represented by RPA (regularity in repaying previous loans). This variable, with a correlation coefficient of 0.91, is strongly positively related to axis 1.

When taking into account the customer relationship, axes 2 and 3 remained identical to those of the factor-variable correlations without the long run. These results confirm the work of Fall (2011), Hoshi et al (1991, Manchon (2001) and Omridu et al (2008).

**Hypothesis H<sub>2</sub>:** of our research model assumed that the regulatory and prudential frameworks and knowledge of the agricultural sector influence the supply of credit to firms operating in the agricultural sector is confirmed by the significant relationship revealed by the surveys.

The survey data shows that 75% of banks believe that prudential regulations imposed on banks do not limit the supply of credit to businesses operating in the agricultural sector, while 25% do not share this view.

These results corroborate the activities derived from their credit portfolio but also from other banking activities, namely securities transactions.

Types of credit	Amounts (in millions FCFA)			% of 2020/2018
	2018	2019	2020	
Short term credit	530 191	599 339	613 898	16
Medium-term credit	410 938	485 442	530 331	29
Long-term credit	42 804	46 724	55 078	29
Outstanding credit	243 418	258 785	257 413	6
<b>Overall total</b>	<b>1 227 351</b>	<b>1 390 290</b>	<b>1 456 720</b>	<b>19</b>

Source: WAEMU Banking Commission reports, 2018 to 2020

The table shows that from 2018, the year in which the new prudential framework came into force, to the end of 2020, credit to companies (all categories) increased by more than 19%.

Similarly, the banks' securities transactions during the same period under review were as follows:

Types of credit	Amounts (in millions FCFA)			% of 2020/2018
	2018	2019	2020	
Investment securities and portfolio securities (including securities on loan)	824 705	850 031	1 064 913	29
Investment securities (including loaned securities)	16 088	60 665	74 671	364
<b>Overall total</b>	<b>840 793</b>	<b>910 696</b>	<b>1 139 584</b>	<b>36</b>

Source: WAEMU Banking Commission reports, 2018 to 2021

As a result of this table, banks' securities transactions increased by more than 36%. These acquisitions of securities by banks allow them to achieve two main objectives: to make gains or capital gains on these securities on the one hand and to use these securities to guarantee the refinancing of banks with the BCEAO at better rates (2%). This refinancing allows banks to grant loans to their customers.

These results reveal that banking regulations are fundamentally designed to protect shareholders and, above all, depositors. They also aim to protect the integrity of the financial system as a whole and influence the supply of credit to businesses.

In addition, more than 83% of the banks surveyed believe that successfully matching the supply to the needs of agricultural sector players requires specific human skills with knowledge of the agricultural sector.

The results of the survey largely confirm these concerns as mentioned in the table below:

How was this information used in the decision to grant credit to companies?	Number of individuals who answered the question	Percentage (%)	Percentage (%) cumulative
Reducing the risks associated with marketing	1	14.29	14.29
Facilitating the decision to destock agricultural products	1	14.29	28.58

Check that the prices offered in the business plan used to grant credit are in line with market prices	5	71.42	100
<b>Total</b>	<b>12</b>		<b>100.00</b>

Source: Author from survey data, 2021

Finally, the survey data reveal that more than 73% of the banks believe that knowledge of each link in the agricultural value chains is essential to master the technical production itineraries (more than 80%), to have the elements or parameters for assessing and appraising credit applications in agriculture (more than 73%), to know the mapping of the major agricultural value chains in Togo and the definition of adapted financing mechanisms and procedures (more than 73%) and to seize agricultural market opportunities in order to design financial products adapted to the needs of the agricultural sector (more than 83%).

The agricultural finance market opportunities and product design provide knowledge of data sources and analysis methods that financial institutions can use to better target their potential market.

## 5. Conclusion

Our research aims to understand how banks manage to overcome information imperfections to facilitate access to bank credit for agricultural enterprises in Togo. This led us to analyze existing theories and literature review leading us to identify variables that were analyzed in this research work. The descriptive analysis and the principal component analysis allowed us to highlight the relationships between credit policies and the associated idiosyncratic variables. These results are significant at the 1% level and indicate that imperfect financial information can lead banks to ration credit. The results are of practical interest to several actors, notably i) business managers who must make optimal choices about information and management systems in order to have quality information to limit information asymmetries in their activities, (ii) to credit lenders who need to have valuable information on investment opportunities in the agricultural sector and to train their staff on the issues of financing agricultural value chains; and (iii) to public authorities to define a comprehensive legal and regulatory environment adapted to the specificities of the agricultural sector and including (the definition of the conditions for the sustainability of the organization of agricultural production and, (the definition of the conditions for the sustainability of the organization of agricultural production and, therefore, the macro-economic environment conditioning incomes, the solvency of family and commercial farms and the securing of loan repayments, the fixing of interest rates for farmers, the capacities of banking control in the agricultural sector, the securing of property rights, the definition of an attractive legislative framework for contracts and guarantees, etc.).

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