

Late Payment of Credits and Profitability of Private Banks in Ecuador

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Abstract

The purpose of this study is to analyze the relationship between late payment and profitability of private banking in Ecuador. The data used corresponds to the data of the Super in tendency of Banks between the period 2012 and 2016. Correlations were calculated for five scenes with the study variables: Bank late payment-ROA; Bank late payment- ROE, Bank late payment- gross portfolio, gross portfolio-ROA and gross portfolio-ROE. Pearson's correlation coefficient was calculated with the described variables. Profitability data reflects the use of the Dupont system (ROA and ROE). As a result, correlation coefficients are obtained for each analysis scenes with values less than zero, determining a perfect negative correlation between the variables for each case; A total dependency between the two variables is also established through an inverse relationship in a constant proportion, understanding that if late payment decreases profitability would increase and if late payment increases, the gross portfolio will also increase. According to the Ecuadorian super in tendency of banks, the most of late payment loans are in the order of consumption, commercial and housing.

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I. Introduction

The economic dynamics of the countries has been based on business growth regardless of whether the company is small, medium or large. Every business or economic activity at some point manifests a need for external investment or financing. Private banking has historically been playing an important role in this economic dynamic; However, it is important to analyze the trends that this business has in terms of profitability and late payment in the loans granted. Despite the fact that interest rate, market and operating risk have become increasingly important in recent decades, there is abundant evidence that credit risk continues to be the main risk factor in financial institutions (Vallcorba & Delgado, 2007).

The orientations of the loans have a great influence on the profitability and non-performing loans, having well-defined variables such as the credit policies of each country, the stability in the financial system and the line of business to which the credit was offered. In the case of Ecuadorian private banking, the late payment rate of the reports issued by the Super in tendency of Banks is analyzed each

year. For the orientation of the credits, the conditions imposed were as follows, (Segura, 2016): a) analysis of the bank according to the assigned amount and b) orientation of the credit. In this sense, an analysis of the late payment of the bank credit asset is pursued, so the information must necessarily come from a financial entity (Lema, Pérez & Segura 1995).

The main activity of the banking industry is financial intermediation, the same that due to its characteristics generates most of its benefits and therefore the greatest risks (Vargas Sánchez & Mostajo Castelú, 2014). Although interest rate, market and operating risk are of increasing importance, most bank failures continue to be the result of an overly risky credit policy (Delgado & Saurina, 2004). Risk is inevitably linked to uncertainty about future events, which makes it impossible to eliminate it. However, we must face it, especially when it comes to financial risk, which we must adequately manage by identifying its origins and the degree to which it is affecting us, to choose the best available ways to minimize it (Montoya Arias, Rave Arias, & Castaño, 2006). The intensity of the late payment cycle will depend on the depth of

the macroeconomic fluctuations and these on the magnitude of the imbalances that have accumulated in the expansionary phase and the response that has been given to them in the recessive phase, (Delgado & Saurina ,2004).

With the risk in the payments of the credits, the late payment is present. The late payment levels will depend on the type of credit, credit policies and the socioeconomic situation of the country. There is a set of individual characteristics of banking entities that affect the late payment levels observed in each institution (Vallcorba& Delgado, 2007). Most financial institutions have standardized, with more or less success, an economic-financial diagnostic model, used by risk analysts in active operations that arise daily in the entity (Lema et al). As the size of the portfolio increases, a substantial amount of risk is diversified. However, this cannot be completely eliminated, as a consequence of several factors among them, the country's economic policies, which affect all credits in general; if the national economy is strong, they tend to perform strong, but if the national economy is having a bad time, they behave weakly. For this reason, risk is classified in two ways: diversifiable and non-diversifiable (Montoya Arias et al., 2006). Today, the average delinquency rate of the financial system makes it essential that risk prediction techniques are as objective as possible (Lema et al, 1995). This considering that: the private banking system is constituted as the sector with the greatest presence within the Ecuadorian private financial system that is under the control of the Super in tendency of Banks and Insurance (Armendáriz,Ocaña,&Villavicencio,2012).

The analysis of financial statements is done mainly by means of ratios (Domínguez & Salas, 2012). Credit rating schemes are tools used by credit analysts at banks, rating agencies, and regulatory authorities to determine qualitatively or quantitatively the probability that a borrower will default on its obligations (Elizondo & Altman, 2003). Several authors have taken profitability as a study object, others have investigated data from a single country such as (Chavarín, 2015). It studies the determinants of profitability of Latin American banks and states that profitability analysis is the most important part of financial analysis, since it seeks to measure the return on invested capital and the factors that led to that profitability and defines it

as the result of the company's operations in a certain period, so it involves economic, operational and financial elements. Due to the particular characteristics of the banking business, the establishment of an analytical system capable of evaluating credit risk is essential (Lemaetal,2007). In order to carry out an adequate risk analysis of active operations with companies and banks, it is necessary to consider, on the one hand, general macroeconomic aspects to be studied by the senior management of the entities, and on the other, the current operations to follow in the face of a request. of credit; for which it is necessary to have information sources that ensure a controlled risk and help the entity to make a correct decision (Lema et al,1995).

Currently, private banks have placed more than 4,800 customer service points in the different provinces, cantons and parishes of the country (Armendáriz, et al. 2012). For profitability analysis, results have been taken from abbreviated annual accounts of the Ecuadorian private banking sector, with sufficient guarantee of quality and reliability of the information provided in annual reports. The use of sectoral data to complement the analysis of the financial statements. Accounting and Management. (Oliveras & Moya, 2005).

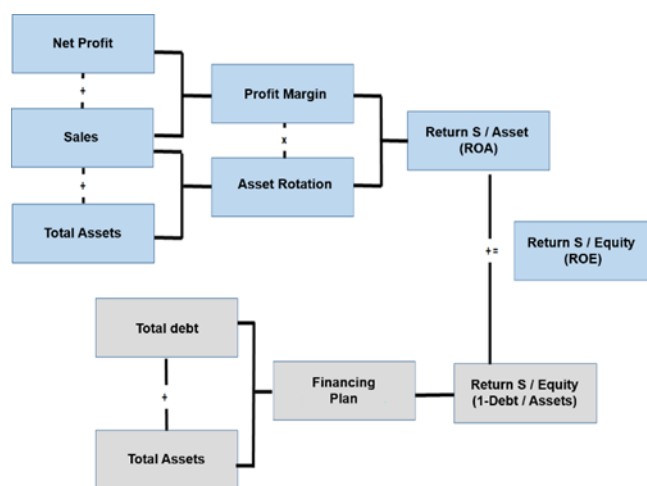


Figure 1. Components of profitability
Source: (Lema et al, 2007)

The DuPont analysis system is used to examine the financial statements of the company and assess its financial condition(GarciaJ.,2015). It brings together the income statement and the statement of financial position in two profitability measures: Return on

Assets (ROA) and Return on Equity (ROE), using the Financial Leverage Margin (MAF), respectively (García J., 2015).

The late payment rate (portfolio at risk) is calculated by dividing the sum of the balance of all loans past due more than 30 days, plus the principal balance of all refinanced loans by the balance of the gross portfolio at a given date (María Antonieta Andrade Vallejo & Maribel Muñoz Lozano, 2006).

Statistical evaluation of data provides for abbreviated analysis with parametric tests that generally allow specific assumptions to be made about populations or population samples; thus, the Pearson correlation coefficient measures the strength of the relationship or association between two sets of variables on an interval or ratio scale and can take values between -1 and +1, which indicates a perfect correlation, be it positive or negative. (OCHOA,2016)

II. METHODOLOGY

This study guides its analysis through the variables of loan late payment and profitability in private banking in Ecuador. The analysis of non-performing loans is carried out using data regarding the non-performing loans ratio and gross portfolio, which were obtained from the document "Financial analysis: System of private banks", from the sub-directorate of studies of the national direction of studies and information from the Superintendency of banks in Ecuador for the years 2012 to 2016. In the statistical analysis, the Pearson correlation coefficient between the late payment and profitability variables was calculated using the STATA 12 software.

Within a number of indicators and metrics that financial management uses to determine the profitability of the business are the ROA (return on assets) and ROE (return on equity) ratios that make up or combine the Dupont system, where it meets to variables such as: profit margin, turnover of the company's total assets and its leverage; variables that are responsible for the economic growth of a company, which allows us to understand that the Dupont system is identifying the way in which the company is obtaining its profitability. The data that was used for the calculations is found as results of abbreviated annual accounts of the Ecuadorian

private banking sector compiled by the Super in tendency of Banks of Ecuador.

III. RESULTS & DISCUSSIONS

The results obtained for the variables: late payment rate and profitability are presented in Chart 1. Correlations were calculated for five scenarios formulated with the two study variables; These variations of scenarios are: a). between the variables late payment rate-ROA; b) between the late payment rate-ROE variables; c). between the gross portfolio-ROA variables, d). between the gross portfolio-ROE variables; and, the late payment-gross portfolio variables.

Table 1. Delinquency rate, gross portfolio, ROE and ROA of private banking in Ecuador 2012-2016.

Year	Delinquency Rate (%)	Gross Portfolio (in millions of USD)	ROE (%)	ROA (%)
2012	2.8	15,774.60	1.11	13
2013	2.6	17,257.40	0.9	10.5
2014	2.9	1,651.60	1	12
2015	3.66	18,773.25	0.88	9.96
2016	3.54	20,357.06	0.62	6.72

Source: Super in tendency of Banks of Ecuador

The correlation coefficients calculated for each scenario presented and the influence between the independent and dependent variables in each scenario, are presented in Chart 2; the values for the coefficients found for the scenarios: late payment-ROA, late payment-ROE, Gross Portfolio-ROA and gross portfolio ROE, are very similar, less than zero with negative values, this indicates that there is a perfect negative correlation between the variables in each scenario, that is, there is a total dependence between the two variables through an inverse relationship to such a point that when one of the min creases the other decreases in constant proportion; Thus, if late payment decreases, the profitability of banks would increase.

Table 2. Correlation coefficients calculated for the scenarios presented with the variables.

Variables	Correlation coefficient	Correlation between variables	Dependence between Variables	Relationship between variables
Late Payment-ROA	-0.6667	Negativa perfecta	Total	Inversa
Late Payment-ROE	-0.6332	Negativa perfecta	Total	Inversa
Gross portfolio-ROA	-0.6931	Negativa perfecta	Total	Inversa
Gross portfolio-ROE	-0.7284	Negativa perfecta	Total	Inversa
Late payment-Portfolio	0.6249	Positiva perfecta	Total	Directa

Source: Authors

The late payment-portfolio scenario presents a positive correlation coefficient less than 1, which indicates a perfect positive correlation, that is, there is a total dependency between the variables in direct relation; thus, while the one variable increases, the other also does so in constant proportion. In this way, when late payment increases, the gross portfolio will also increase. In this scenario, the independent variable late payment acts on the dependent variable gross portfolio.

By graphing the values of the delinquency indices and the return expressed as return on equity - ROE and calculating the linear regression for said data, it can be seen that the relationship between the variables is effectively dependent on the inverse relationship, that is, the return of the bank, expressed as return on equity, appears diminished as delinquencies increase over time, as shown in Figure 2.

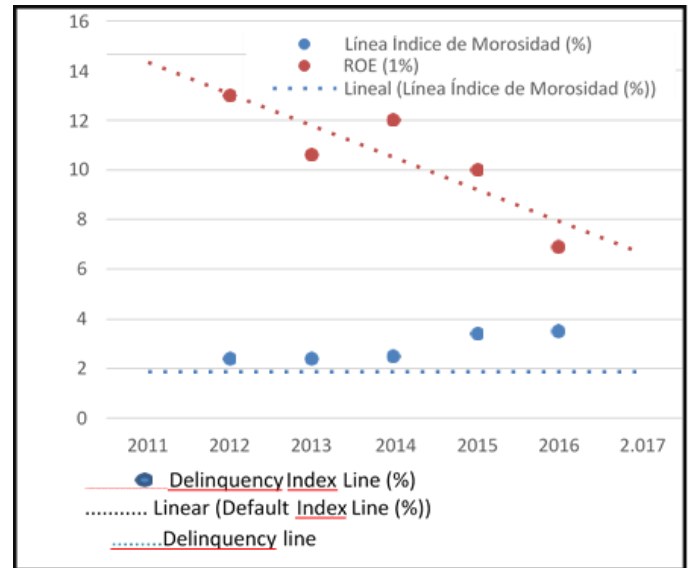


Figure 2. Linear regression for the delinquency and ROE variables in Ecuadorian banking 2012 - 2016. Source: Own elaboration with data from the Ecuadorian superintendency of banks of Ecuador

Likewise, when determining the linear regression with the data for the delinquency variables - ROA, it is determined that the relationship between the variables is also dependent with an inverse relationship, to such an extent that the profitability expressed as return on the ROA assets decreases while delinquency increases, as shown in Figure 3.

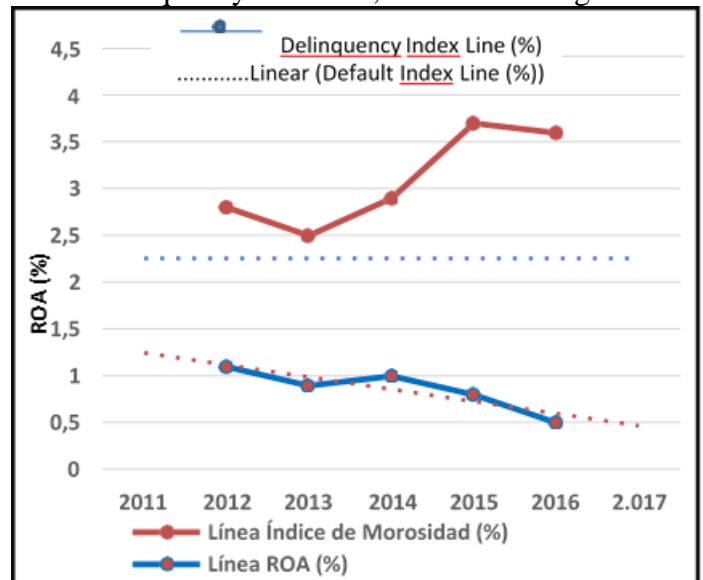


Figure 3. Linear regression for the delinquency and ROA variables in Ecuadorian banking 2012 -2016.

Source: Prepared by the authors with data from the Ecuadorian superintendency of banks.

From the literature, in profitability functions, the

delinquency rate is usually used as an indicator of credit risk, almost always measured through return on capital (ROE) and return on assets (ROA). Likewise, an unavoidable indicator in the financial management of banks is the use of the gross portfolio indicator, which is usually measured through the same indicators of the bank's return on capital or profitability.

From the above it can be inferred that by including the delinquency rate as an explanatory or independent variable in the profitability function, then profitability is conceived as an endogenous or dependent variable.

On the other hand, the gross portfolio in private banks in Ecuador is made up of different lines of credit that are granted according to the destination that the company or natural person requires. According to the rate of increase, the consumer credit destined for the applicant's personal use in 2015 rose to 6.9% and in 2016 fell to 0.2%; Microenterprise credit destined exclusively for micro entrepreneurs in 2016 rose to 6.6%; Housing credit intended exclusively for the purchase of houses, land or to cover buildings had the highest activity in 2016 with 3%. Commercial Credit intended for trade as working capital in 2016 increased to 1.2% and for Educational Credit the most relevant year was 2014 with 5.1%. All the credits generated by financial institutions allow profitability to exist as long as the portfolios are recovered at the established time.

According to the results obtained in the applied correlation analysis, delinquency in the recovery of the fruit is a determining factor in the profitability of Ecuador's private banks, whose credits that have caused more delinquency are in the order of consumption, commercial and housing mainly. In this context, "Financial institutions recognize the increase in non-performing loans in their credit portfolios. Banco Pichincha assures that the economic contraction that has been evident since last year in most of the country's economic and productive sectors has caused the delinquency rate to experience growth (Líderes Expres, 2016)".

IV. CONCLUSIONS

The objective of this study was to analyze the relationship between late payment and profitability

in private banking in Ecuador. Delinquency is a significant factor of profitability expressed as ROE and ROA since there is a total dependence between the analyzed variables through an inverse relationship given by the calculated linear regression and correlation values, to such an extent that when the profitability index decreases, delinquencies increase in constant proportion. The same effect has when correlating the gross portfolio and profitability variables where it is found that there is a total dependency between the variables with positive relation in direct proportion; Thus, as delinquencies increase, the gross portfolio also increases.

Private banking has a growing linear trend in delinquencies and profitability that is reflected in the data presented by the Ecuadorian Super in tendency of Banks from 2012 to 2016 and whose linear adjustment also demonstrates this; The same trend is maintained by the different types of credit that make up the gross portfolio in Ecuador's private banks, within which consumer and commercial credit have the greatest impact on the dynamics of the economy due to their structure and use.

According to the results of the analysis carried out, the delinquency rate constitutes a determining variable of the profitability of private banking in Ecuador, although, the author of this article can infer, according to the literature, that profitability may also be affected by other exogenous variables such as the nature of income, capital adequacy, risk capital, growth rate of economic activity, administrative expenses, liquidity, etc.

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