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Financial Risk in Spanish Companies in the Year 2015

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ABSTRACT

This study assess the financial risk by a probabilistic model in companies from Spain, which in 2015 reported financial information with the National Commission of Stock Market (NCSM). It was performed filtering and analysis of financial statements of 107 companies, and then proceed to determine financial risks of liquidity, debt and portfolio recovery by calculations of relevant indicators, later through the use of a LOGIT model the financial risk could be determined, establishing the goodness, consistency and reliability of the investigation.

Among the main findings they were that 71, 03% had financial risk, compared to 28,97% who did not have financial risk, the sector with highest financial risk is Construction with 87,5%. Finally, the sector with the highest number of companies is Industrial, wich are 16,8% of companies in Spain, only 33,33% of the companies did not present financial risk during 2015. Of the three indicators used in the model, the highest risk are Portfolio Recovery, where 71% of companies have increased turnover to 60 days, and debt with 71% of companies wich have a debt higher than 50%. The findings confirm the hypothesis that liquidity portfolio debt and do not adversely affect the financial risk of SMEs, besides that employers make no management to reduce the financial risk in their organizations.

Keywords: *Borrowing Risk, Financial Risk, Liquidity Risk, Portfolio Recovery Risk;*

JEL Clasification: *D81, G24, G32, G35;*

INTRODUCTION

The current situation worldwide has been characterized by constant changes and by the high uncertainty of the markets. Some studies indicate that they have begun to live "moments of risk" (Toro Diaz, Redondo Ramirez, & Diaz Restrepo, 2015), largely to the globalization of markets in terms of greater integration which has generated the events of a region or country indirectly affect other regions or the rest of the world by the interrelation of economies, citing the following examples: Devaluation of the Mexican peso (Efecto Tequila, 1995); Asian Crisis (Dragon Effect, 1997); Devaluation of the real in Brazil (Zamba Effect, 1999); Fall of the American NASDAQ index (2000); Economic slowdown in the United States and widespread increase in energy prices (2001); Collapse of the Argentine economy (Efecto Tango, 2002); Financial economic crisis (2008). In all these situations the uncertainty has been present, the essential thing has been to evaluate the risk that these situations bring, these elements lead to the reflection put forward by Pascal (Pascal, 1999) when referring that: "the world from the financial point of view, It's a riskier place. " From the above arise the needs of new methods, procedures and models to measure and control the increasingly complex risks.Throughout the world, small and medium enterprises are making up the majority of the business fabric. According to the Central Companies Directory (DIRCE), as of January 1, 2016 there are 3,232,706 companies in Spain, of which 3,228,747 (99.88%) are MSMEs (between 0 and 249 employees), that is, 99%; and because of this there is a concern to investigate and know the risks to which these companies are exposed, in order to generate instruments that allow

acting with opportunity, being few studies in this field, and nonexistent in the case that is analyzed in this work, particularly in the field of liquidity management, debt and portfolio management.

Similarly, the interest is also born because small and medium-sized companies do not usually count (a priori hypothesis) with a financial department that makes a complete and adequate monitoring of the different risk indicators and from that, make the relevant decisions and apply the strategies conducive to the mitigation of the risks in which they are immersed, as indicated by Miller (1994).

This work aims to offer elements that allow companies to have tools that serve to balance the results of the calculated indicators and have a controllable risk. According to San-Martín-Albi-Zuri & Rodríguez-Castellanos (2011), the current crisis has revealed the close relationship between three aspects inherent to the development of financial markets in recent decades: the process of globalization, the volatility of magnitudes financial and uncertainty.

STATE OF ART

Spain, after a long process of economic expansion after the crisis of the 90s reflected in economic growth above the European average. However, in 2008 it suffered a stagnation of its economy as a result of the global financial crisis, generated a period of economic recession from which it is still recovering (European Commission, 2014). The results shown to the world show a recovery framed by the economic growth that the economy has presented, where it went from a growth of 1.4% (2014) to 3.2% (2015). In addition, it has been leveraged as mentioned in the portal (Santander Trade, 2016) by sectors such as agriculture that contributes about 2.5% to Spanish GDP. Spain produces wheat, sugar beet, barley, tomatoes, olives, citrus, grapes and cork. The country is the largest producer of olive oil in the world and the third largest producer of wine. It is also the largest producer of lemons, oranges and strawberries. Spain has limited mineral resources. The second sector is the manufacturing industry, which is dominated by the textile sector, industrial processing of food, iron and steel, as well as machinery and naval engineering. New sectors, such as the offshoring of electronic components manufacturing, information technology and telecommunications, offer great potential for growth. And the third and last leverage sector is tourism, which is the country's main source of income, which has become the second tourist destination in the world, thus stimulating the export of goods and services. The tertiary sector accounts for two thirds of GDP and employs more than 75% of the population.

- However, it is important to clarify that companies also need advice in other fields in order to diagnose what is failing in the organization, which means that their indicators may be at inadequate levels. That is, on many occasions it could be found that the company must diversify its products and services to meet a demand that is being ignored and this generate greater profitability or creation of value. What is intended is that the financial area can collaborate in this creation of value.
- SMEs usually have a certain adaptive advantage to quickly change their productive structure in the case of varying market needs, which is usually more difficult in a large company. Thus, Toro (2009 and 2012) mentions the following:
- Small companies have more difficulty finding financing at an adequate cost and term, due to their greater risk, and to solve this they resort to financial institutions.
- They are companies with greater labor rigidity and difficulties in finding skilled labor, so the employee's prior training is essential for them.
- Due to the small volume of benefits presented by these companies, they can not dedicate funds to research; however, in many cases they are innovative in processes and products.
- Because of their size, they have a small portfolio of clients. Other disadvantages presented by this type of organization, according to Beltrán (2004), are the following: SMEs have great structural weakness for several main reasons:
- They lack strategy and planning, which becomes a limitation for insertion in an international context and puts their continuity in the national market at risk.
- Access to credit lines is difficult and, therefore, investment in technology, working capital and knowledge is not possible.
- The administrative, financial, accounting and operational management is very informal and intuitive.

Taking into account the above, in SMEs and knowing their high degree of vulnerability faced

the international market, they were considered as object of study, in order to contribute to its permanence over time. To test the hypothesis, the sample of SMEs mentioned above was taken, in order to observe the behavior of financial risk in Spanish companies for 2015. To this end, a series of main and secondary objectives were established, such as:

- Characterize financial risk in Spanish companies.
- Debug the financial statements of the SMEs under study.
- Determine the liquidity, indebtedness and portfolio recovery rates that are affecting the financial risk of a group of Spanish companies.
- Establish the risk condition of the companies under study.
- Analyze the financial risk according to the productive sectors for the companies under study.

In the same way, before developing the work, we inquired about studies related to the main objective. This is worth mentioning the study conducted by Ávila (2005), in the city of Bogotá, called Measurement and control of financial risks in companies in the real sector. The author considers that there are three types of financial risks in organizations, known as market risks, credit risks and liquidity risks, and develops for each one of them different aspects of management, administration and measurement. These risks are classically described by authors such as Markowitz (1952) and Miller (1994), also taken up by Tudela and Young (2005), that is, they do not articulate them to carry out an integral analysis, but rather have a perspective of them at the level individual. In addition, it defines five basic steps for risk management, such as:

- Identification and selection of risks.
- Evaluation and measurement of risks.
- Establishment of risk acceptance limits.
- Selection and implementation of risk management methods.
- Monitoring and control.

The author develops his work, creating in the organization a risk department, which he believes should be responsible for the design and adoption of the risk management system and, in addition, will be accompanied by a risk committee that will be responsible for approving and pointing out the company's guidelines regarding risk management and control. In this case, the structure developed by the author in his research becomes a bit more complex, since it includes a series of elements that would not apply to small and medium-sized companies, due to the cost of their implementation.

An important aspect of this study is that it recognizes the need for risk measurement in organizations, and that it is deepened and investigated in the management and administration of the same, to such an extent that it is considered that it should be an element complementary to the development of the social object of the organizations.

In this context, Zorrilla (2003) also conducts a study in the city of Veracruz (Mexico) on the management of financial risks in export SMEs in contributions to the economy, which aims to guide and demonstrate to entrepreneurs the importance of the use of derivative financial instruments such as forwards, futures, options, swaps, to achieve the reduction of market risks. This work focuses on these derivative financial instruments, due to their ability to mitigate or reduce the risks faced by SMEs. Another study is that of Ballesteros and López (2009) of the University of Seville; This is a proposal for a simplified model for the detection of business risk: an empirical study applied to the construction sector (SMEs). Its purpose is to identify the most significant variables or ratios of business solvency in construction companies through the analysis of the annual accounts of a sample of companies, some without problems of continuity in their activity (healthy companies) and others that are in a situation of bankruptcy or suspension of payments (failed companies), with the ultimate goal of proposing a simplified method of prior detection of possible risk situations.

The author uses information about healthy companies and failed companies, taking into account the economic and financial data of all companies, corresponding to the four years prior to the business failure. The statistical technique that is used for the reduction of the variables that are finally integrated into the system is the multivariate analysis. According to Ballesteros, the utility of the discriminant method lies in its capacity to provide an integral model of analysis, made up of a combination of ratios that are not correlated with each other, which summarizes the financial and economic information in a more assimilable way to the user.

Discriminant analysis is also applied for predictive purposes. The main issue in the predictive application of the discriminant analysis is to determine in advance the situations of business crisis. It is a question of pre-cataloging a company as healthy or unsuccessful based on the values that the ratios take in the years prior to the crisis, through the application of the constructed discriminant functions. Hincapié (2007), in his study of Financial Risk Analysis for the micro, small and medium-sized companies in the metal-mechanic sector of the city of Manizales, applies a unit of analysis similar to the object of the present work, although with a different methodological model. . This study proposes to use the Z2 index, which is an econometric model that is constructed from financial reasons. These financial ratios are combined linearly with a specific weight for each, in order to obtain as a final result a rating (Z-score) that discriminates companies that fail to comply with their commitments. The model was created by Altman in 1968 for the prediction of bankruptcy. (Altman, s.f.). The Altman model uses discriminant analysis as a multivariate statistical technique; it is a sequential process in which the analyst excludes those financial ratios that are not statistically significant and includes those that are.

The author considered that the aforementioned model requires the measurement of risk, since the factors of the independent variables will enter as numerical variables that will qualify each observation according to the company, the sector effect, the mesoeconomic environment and the general environment Consequently, the dependent variable of business performance that will be used will be the calculation of Altman's Model Z, known as bankruptcy probability. Therefore, on this perspective, the concept of risk is articulated with those factors that, when dimensioning them internally or externally, negatively affect the company. The positive impact makes them successful factors, as Álvarez and García put it in 1996.

Under these approaches, it has been considered appropriate to carry out this work, since based on the results presented by the companies, they can generate agreements through which they can design the necessary instruments so that they can foresee situations that are not favorable for the company and, as such, Once, in a short or medium term it can be seriously affected or compromised. Therefore, these signals are the ones that will allow you to make the relevant decisions and act at the right time.

The aim is to offer a support criterion for decision making, this being the cause that motivated the search for new and better alternatives to solve the organizational problems of SMEs, with the purpose of responding to their needs.

An element that provides the design of this tool within its methodology is the comprehensive analysis of the financial indicators to be calculated, since these are always analyzed and evaluated individually in some organizations.

METHODOLOGY

The emphasis of the work is case study, measuring and describing the financial risk in some companies, but due to the difficulty in accessing information, it is not working with all of the Spanish companies and therefore the level of inference is circumscribed to the population under study.

In this sense, the study is oriented to measure, observe and characterize a reality of Spanish companies for the year 2015, where the financial statements of 107 companies of a specific year were analyzed, and then proceed to perform the calculations of the financial indicators of liquidity, indebtedness and portfolio rotation, to proceed to determine the risk through a probabilistic model and as a dichotomous variable. These three types of indicators were chosen within the operational risks because they are those that affect in the short and medium term and taking into account that they can also affect the performance and viability in the long term in SMEs.Based on previous studies and pilot tests carried out by the researchers, the following values were determined to determine in each index the presence of the risk or not:

- Liquidity 1.1
- Portfolio management 60 days

50% Indebtedness With the above referents it could be defined that a company has liquidity risk

To determine the risk in each indicator, it was established that when the result in the calculation of the current ratio is less than 1.1 and whose value under the variable "dummy" will be 1. This reference value used is not very far if we take up again the expressed by Altman (sf), which, in the discriminant analysis carried out in its studies on the risk of insolvency with several financial ratios, showed how they acted as predictors of it.

For the recovery of portfolio, a company will have risk in portfolio management when the result in the calculation of portfolio recovery gives a value greater than 60 days, and whose value under the variable "dummy" will be 1. To determine if a The company has an indebtedness risk, when the result in the calculation of the index is greater than 50%, since, in turn, it compromises its equity science and the value assigned in the variable "dummy" will be 1.

Once each index has been calculated (liquidity, indebtedness and portfolio rotation), this result will be converted into risk terms as a dichotomous variable as follows:

1 - if the financial index has risk

0 - if the financial index has no risk

Among the risks described by the literature that may affect companies, is the operational or business risk, understood as the derivative of the decisions that are taken daily within the company, either in relation to production, distribution, prices, among others. Jorion (2001) defines financial risk as the risk of not being able to cover the financial costs of a company.

For the calculations of the risks of indebtedness and portfolio recovery, formulations of conditional Yes were made, which allowed smoothing the model and its dispersions. This formulation in the case of the portfolio is carried by all the securities of those companies that give more than 360 days of recovery, presenting atypical data in the model and also exceeding the maximum accounting period (portfolio over 360 days) and that is punished by companies as losses in the income statement to the next period. Likewise, the formulation of the conditional Yes in the debt was applied, converting all the levels above 100%, since the companies will not be able to have a debt higherhan the value of the assets, although the calculations show this.

We worked with the companies of the database of the National Securities Market Commission (CNMV), which were altogether 107 and where those that are in the process of liquidation were excluded, where the companies were classified by subsectors that, according to the companies studied.

Subsequently, descriptive statistics were applied with the results in order to obtain simplified information to analyze and interpret it more efficiently. Specifically, central tendency measures were used, which served as reference points to interpret and corroborate the results obtained through the indicators.

After knowing the results of each of the indicators, a conditional if formula was applied to establish whether the company had a risk or not, according to the three calculated indicators. The formula consisted of if the sum of the 3 indicators was equal to or greater than 2, then the company had risk, since the analysis described above consisted in determining the risk only by indicator. That is, the analysis in this part of the work was done in an integral manner.

Having defined the above, a risk table is generated, in order to determine, by company and sector, its financial risk through the following criteria:

- The company that owns 2 or 3 of the indicators in risk condition (1), will have financial risk.
- The company that owns 2 or 3 of the indicators in conditions of no risk (0), does not have financial risk.

Table1. *Comparison of financial risk subsectors of the economy*

Sectores	# empresas	R. Liquidez		R.Endeudamiento		R. Cartera		R. Financiero	
		Con riesgo	Sin riesgo	Con riesgo	Sin riesgo	Con riesgo	Sin riesgo	Con riesgo	Sin riesgo
Actividad financiera y de seguros	3	33%	67%	33%	67%	100%	0%	67%	33%
Actividad sanitaria y de servicios	1	0%	100%	100%	0%	0%	100%	0%	100%
Agricultura, ganadería, silvicultura y pesca	1	0%	100%	100%	0%	100%	0%	100%	0%
Alimentario	6	33%	67%	50%	50%	83%	17%	67%	33%
Bancario	2	100%	0%	50%	50%	100%	0%	100%	0%
Bienes de consumo	3	100%	0%	100%	0%	100%	0%	100%	0%
Comercialización	2	0%	100%	100%	0%	0%	100%	0%	100%
Confección	3	67%	33%	100%	0%	67%	33%	67%	33%
Construcción	8	75%	25%	75%	25%	50%	50%	88%	13%
Energético	8	50%	50%	88%	13%	75%	25%	75%	25%
Farmacéutico	1	100%	0%	100%	0%	100%	0%	100%	0%

Fichas históricas	1	100%	0%	100%	0%	100%	0%	100%	0%
Finanzas	1	100%	0%	100%	0%	100%	0%	100%	0%
Hotelería	2	50%	50%	50%	50%	50%	50%	50%	50%
Industria Manufacturera	4	0%	100%	50%	50%	50%	50%	25%	75%
Industrial	18	56%	44%	78%	22%	50%	50%	67%	33%
Información y comunicaciones	1	100%	0%	100%	0%	0%	100%	100%	0%
Inversiones y servicios	1	100%	0%	100%	0%	100%	0%	100%	0%
Materiales básicos industria y construcción	2	50%	50%	100%	0%	50%	50%	100%	0%
Material escolar, papelería y oficina	1	0%	100%	100%	0%	0%	100%	0%	100%
Metalmecánico	1	100%	0%	100%	0%	100%	0%	100%	0%
Salud	2	0%	100%	100%	0%	100%	0%	100%	0%
Servicios	8	75%	25%	75%	25%	38%	63%	63%	38%
Servicios de consumo	4	50%	50%	100%	0%	100%	0%	100%	0%
Servicios financieros	10	40%	60%	80%	20%	80%	20%	80%	20%
Servicios financieros e inmobiliarios	2	0%	100%	100%	0%	100%	0%	100%	0%
Servicios peaje	2	0%	100%	0%	100%	100%	0%	0%	100%
Software	1	100%	0%	100%	0%	100%	0%	100%	0%
Suministro de energía eléctrica, gas, vapor y aire acondicionado	1	0%	100%	0%	100%	100%	0%	0%	100%
Tecnología y comunicaciones	1	0%	100%	100%	0%	100%	0%	100%	0%
Telecomunicaciones	3	67%	33%	67%	33%	100%	0%	100%	0%
Textil	1	100%	0%	100%	0%	100%	0%	100%	0%
Transporte	1	0%	100%	100%	0%	100%	0%	100%	0%
Viviendas	1	0%	100%	0%	100%	100%	0%	0%	100%

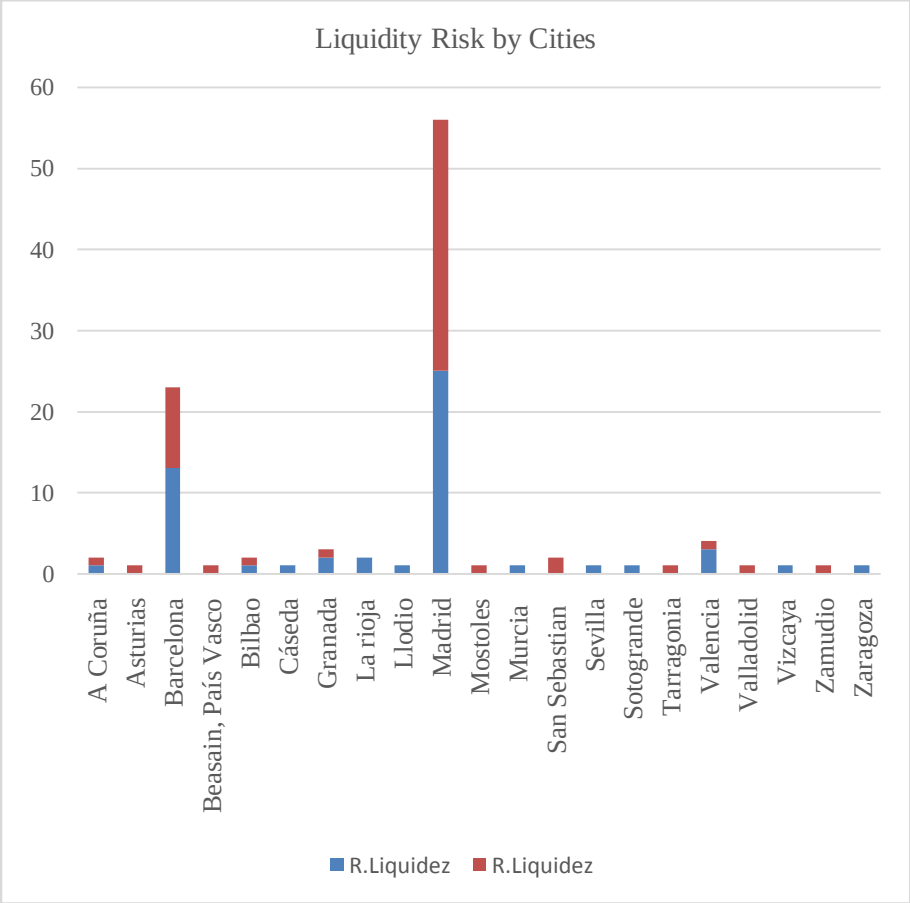
Once the financial risk for the companies has been calculated, a descriptive analysis of the risk behavior by type of company and by productive sectors according to clusters will be made by cluster analysis. This model will be applied to each company and with these results in classes, a table is created with classes, levels or intervals with risk scale and the number of variables is an odd number (3).

Finally, verified and validated the database, and clarified the independent variables that were used to explain the variations of the dependent variable (not financial risk, financial risk) go to the SPSS program to run the Logit model, which allows to establish the goodness, consistency and reliability of the model to accept or reject the hypothesis of work.

RESULTS

The information to analyze is the financial risk of the company, through the description of the financial indices of Indebtedness, Liquidity and Recovery of Portfolio, based on the basic financial statements: Cash Flow, General Balance and Profit and Loss Statement, reported to the database of the National Securities Market Commission (CNMV) during 2015. First of all, all the companies are analyzed and after that a descriptive analysis is made based on the results of the different productive sectors of the economy and complements itself by making a comparison between the main cities. Among the results it was found that 50.5% of Spanish companies presented liquidity risk, while 49.5% did not present it, inducing that after paying their debts they are not counting on money to invest. Another possible consequence of the liquidity risk was due to the fact that inflation reached the highest levels in twelve years, exceeding 4%, due to the rising cost of oil and basic foodstuffs; unemployment registered 400,000 unemployed more than a year ago; decreases in household consumption, in the index of industrial production, in the number of mortgages granted, in VAT collection, etc. (Ocon Galilea, 2013) in his work concludes that the banking sector can not grant credit and recapitalize at the same time. Until the credit is not reactivated many companies, mostly SMEs, will not be able to generate employment. Unemployment is currently at historic levels, exceeding 6 million unemployed, so reducing high unemployment becomes one of the priorities to get out of the crisis. The reactivation of credit and the decline in unemployment are strongly linked, which means that liquidity is further diminished. This indicator taken by cities (Graph 1), showed that Madrid being the city with the largest number of companies was characterized because of the 56 companies 31 did not present liquidity risk, indicating that despite the fact that 50.5% of the total companies have a risk, those in the

city are characterized by not having it. This shows the growth of the city's economy, as mentioned (Mercado Libre, 2017) Madrid's real GDP has gone from 73,112 to 269,000 million (2016), making the region the locomotive of the Spanish economy. The other city with more companies is Barcelona, for this if it was presented that in most companies there is risk, this may be because as it was presented in the rest of the country that was the crisis that hit this country and especially your economy.



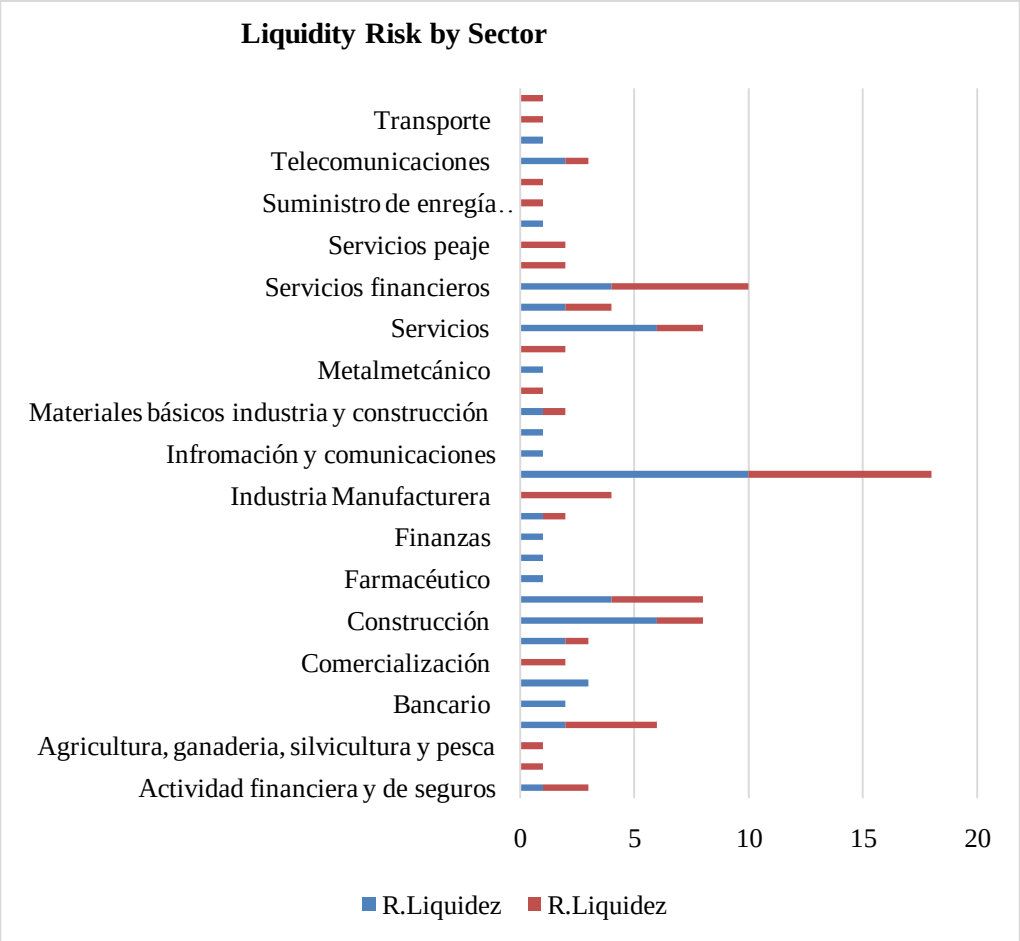
Graph1. *Liquidity Risk by Cities*

***Source**: Own elaboration based on data taken from the CNMV*

On the other hand, liquidity risk by sectors (Chart 2) identified that the sectors with the greatest risk are those of industrial, services and construction, supporting the aforementioned by (Ministry of Industry, Energy and Tourism) which in "the agenda for industrial strengthening "highlights that the current economic crisis has highlighted the importance of the role of industry as a generator of growth and employment, leading to a drop in domestic demand. Regarding the services sector, it is highlighted that Barcelona is one of the cities that most characterizes this sector and those that present liquidity risk, so specifically in tourism, which is the subsector where all these companies are located, they also present risk. Of liquidity. And finally the construction sector has been characterized by having a cyclical behavior, marking the general oscillation of the economic situation of the country, although more pronounced, both in the expansive stages of the cycle, as in the depressive ones. In the former, as its GVA grew above GDP, it has gained relative importance in the productive structure of the country, generating employment and increasing the share of construction assets in domestic demand. In the latter, its GAV has grown less than GDP or has more to the detriment of the economic recession (real GDP decrease), destroying a significant proportion of its employment and destabilizing domestic demand (UAM research).

71% of these companies presented debt risk, compared to 29%, which have no risk, affecting the company's response capacity in meeting the objectives, as well as the higher payment of a financing cost through of third parties, compromising the expected profitability of own capital. It is highlighted for example to Madrid that 78% of the companies present risk, and also a possible additional reason of indebtedness on the part of the companies is that from 2008 that

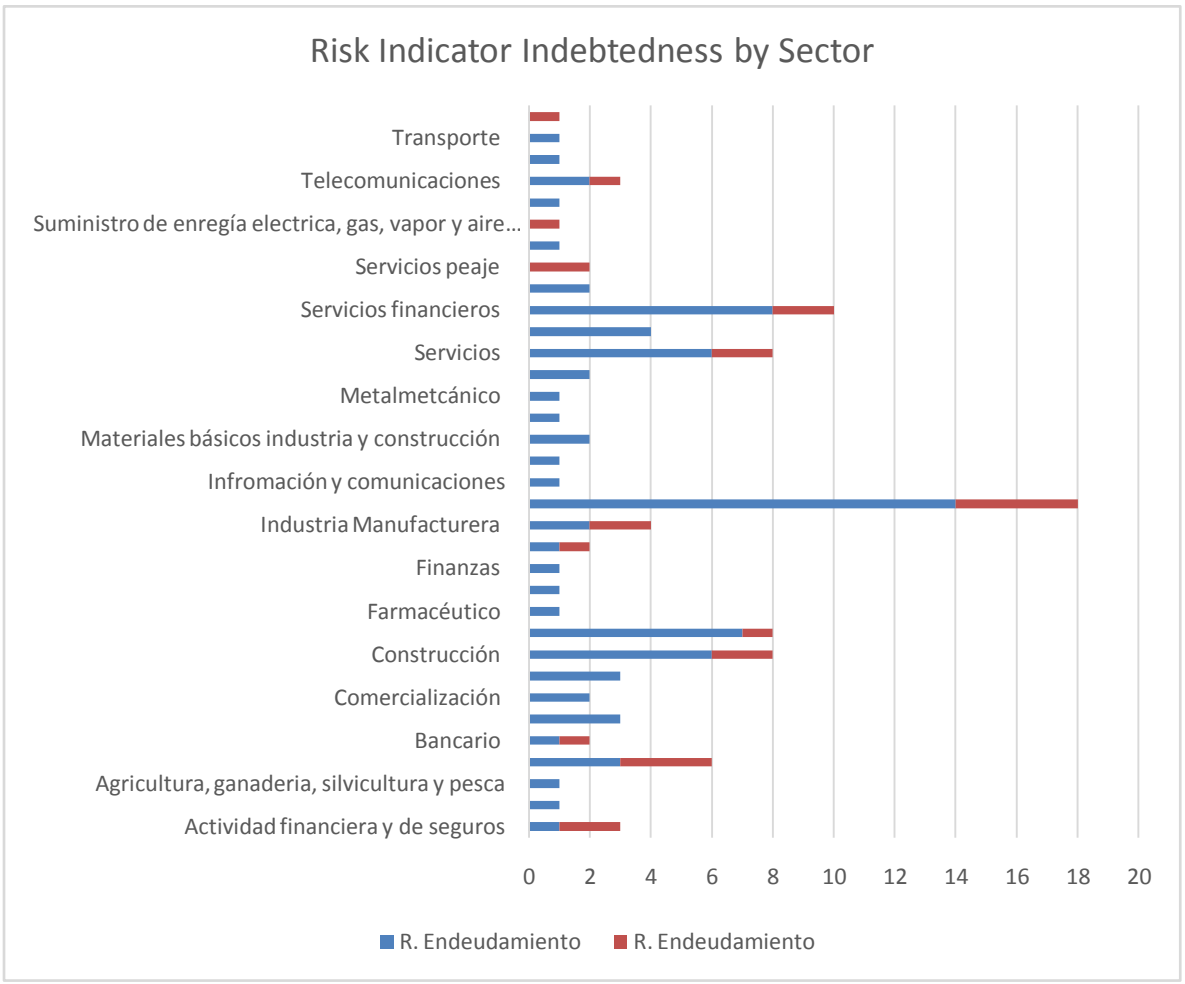
the economic crisis began in the wake of a real estate bubble the banks had to become more indebted and in spite of what he mentions (Ocon Galilea, 2013), which stands out in July 2008, the Government recognized that Spain was in crisis and that the stagnation of sales in the real estate sector, the restriction of credit and lack of of confidence in a recovery, companies may have followed their level of indebtedness because they need to do so to carry out their operations, so that this then could not decrease but remained constant and / or could increase because at the same time there was an increase in inflation to 4%, making everything more expensive and reducing the acquisition capacity.



Graph2. *Liquidity Risk by Sector*

Source: *Own elaboration based on data taken from the CNMV*

The indicator of risk of indebtedness by cities (Graph 3) was characterized because the industry was one of the sectors with more companies at risk, something worrisome because as mentioned (Caixa Bank, 2016), it "has a higher average labor productivity to that of the other sectors of the economy (up to 47% higher than the services sector once the real estate sector is excluded). It is also key in the export sector: almost 30% of sales were destined abroad, two thirds of which in the EU. In Short, the Spanish economy has a diverse industrial fabric, exporter and high productivity". Regarding construction, the Economic and Social Council of Spain (2016) mentions that "construction activity, the sector has been particularly sensitive to the crisis in the euro area as a whole", that is, this has been pro-cyclical. For this sectorial risk (Ocon Galilea F., 2013) it mentions that "the construction companies were left without financing as credit was restricted and the refinancing conditions tightened, with many works in progress, which aggravated the situation of a sector with a high degree of leverage". At the end of 2007, the outstanding credit investment balance granted by credit institutions amounted to 1.7 trillion euros, growing at an average rate of 20% per annum in the previous six years. Of those 1.7 trillion euros, three components were intimately related to the real estate sector: construction loans, credit for real estate activities (developer credit) and credit for the acquisition and rehabilitation of housing.



Graph3. *Risk Indicator Indebtedness by Sector*

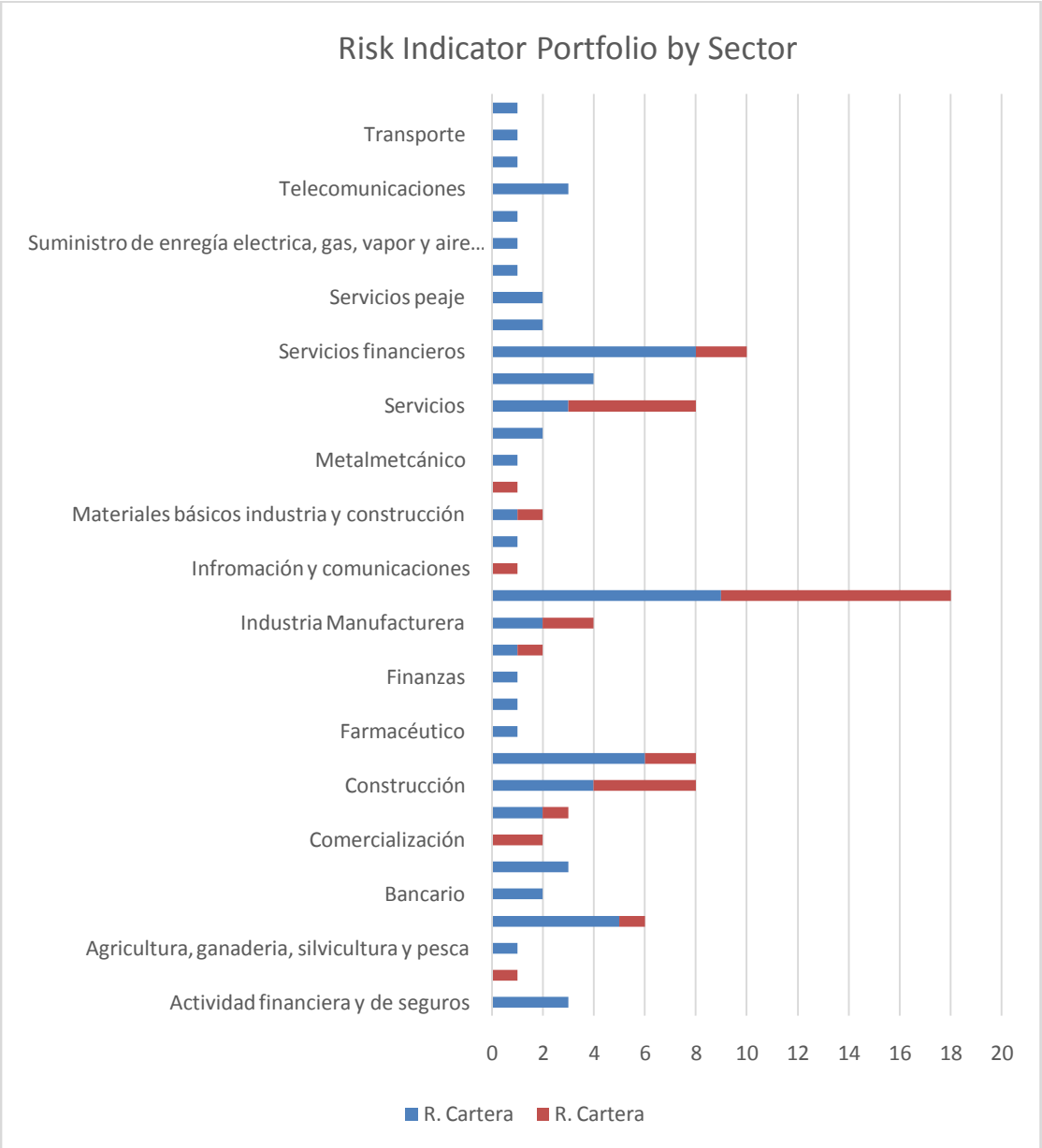
Source: *Own elaboration based on data taken from the CNMV*

Galileo highlights that among the main consequences of the bubble's puncture was an increase in unemployment and the contraction of consumption. Up to half of the real estate agencies were closed and a large number of construction companies went bankrupt, so great difficulties also arose for the real estate consortiums. Spain, whose industrialization was not as early and deep as in other developed countries in Europe, shows a clear deficit in advanced services, financial and information, as the most advanced industrial companies are the main applicants for this type of services. This is also reflected in graph 3, where these are the sectors with the highest risk of indebtedness.

The last indicator analyzed is the portfolio or better called portfolio turnover refers to the time it takes the company to convert accounts receivable in cash or in the same way get their customers pay the credits. It is evident that of the 107 Spanish companies analyzed for 2015, 71% of these are at risk of not recovering all the accounts receivable, that is, losing the portfolio and losing a large amount of money, while the 29% is without risk.

Regarding portfolio risk by sectors, in Graph 4 it can be seen that most companies are classified in the industrial sector with 18 of the 107 companies, this is also where the highest percentage of industries with risk is, but also the largest without risk, that is, of the 18 companies it is evident that nine of them have risk and portfolio and at the same time nine of them do not have this. The portfolio risk can generate that a company does not lose the money they have in credit to their customers and that affects the company both monetarily and in the sector itself. Thanks to the different situations experienced in the Spanish economy, companies or customers who have credits with other companies may be affected because if a customer (person) both natural and legal suffers great consequences for the crisis may disturb their suppliers of raw materials as also of finished product. On the other hand, the other sector that has a large number of companies

with portfolio risk after the industrial one is the financial services sector which, due to its business name, offers large loans to its clients, which generates a high level of uncertainty; However, in the service sector in general there are more companies without risk, this is because they have lower prices and to pay at a precise moment.

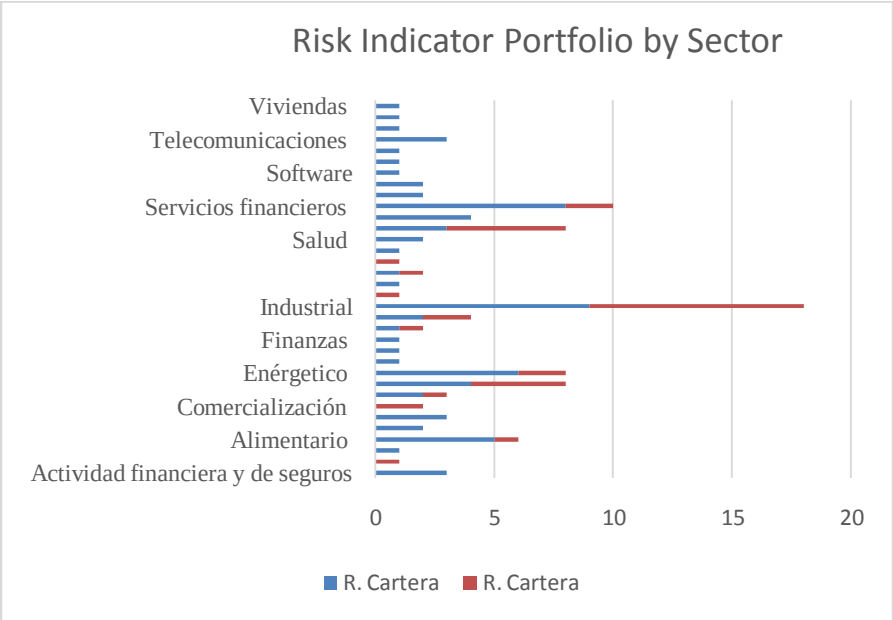


Graph4. *Risk Indicator Portfolio by Sector*

Source: *Own elaboration based on data taken from the CNMV*

As explained above, the industrial sector stands out for being the item with the largest number of companies that have financial risk with a total of 12 of the 18 that are classified in this, likewise it also contains the majority of companies without financial risk. They refer to the 6 surpluses, this may be a consequence of the fact that the industrial sector in Spain has had great variations throughout history and has been affected by the different situations that the country has experienced such as the recent economic crisis, which may cause companies to be affected in different areas as well as different risks that lead them to have a financial risk in general. The other sector that is affected in terms of financial risk is that of financial services, in which there are, for example, banks which offer large loans to a large number of people and companies, so they may have portfolio risk and so on. They can have great risks in both debt and liquidity, generating the risk studied in this chart. It can be seen that in services where the payment is immediate, as in this case, that of toll services, the companies classified in that sector do not have a financial

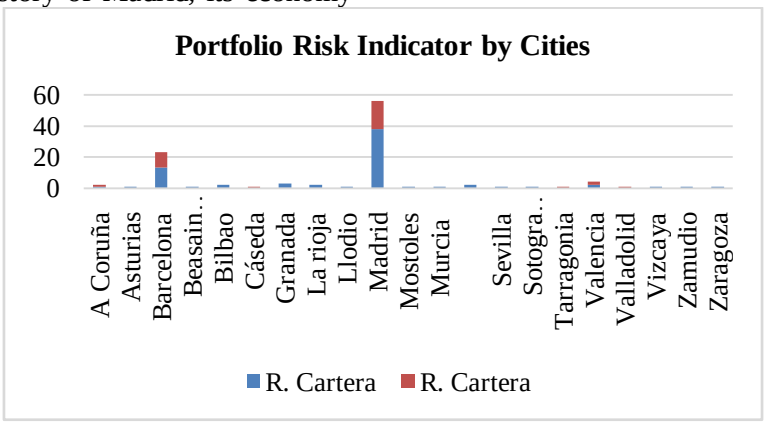
risk because their income is daily and instantaneous.



Graph4. *Risk Indicator Portfolio by Sector*

Source: *Own elaboration based on data taken from the CNMV*

The majority of companies are located in Madrid and likewise most of them have portfolio risk from the 56 companies, 38 have risk and 18 of them without it (Graph 5). Throughout the history of Madrid, its economy has undergone major changes and has been significantly affected by economic crises, which has had negative variations in its percentage of GDP share and also in the unemployment rate.



Graph5. *Portfolio Risk Indicator by Cities*

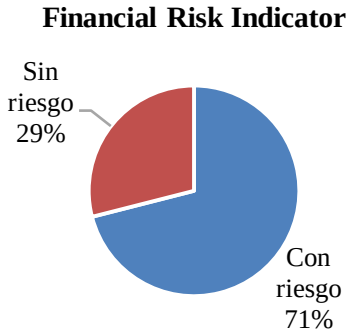
Source: *Own elaboration based on data taken from the CNMV*

Analyzing the data with which the different graphs of this paper were made, there is evidence that the majority of companies located in Madrid belong to the industrial sector and the financial services sector, which are the items that were analyzed in the previous graphs since they are the highest in terms of portfolio risk, therefore they are the same companies that in the industrial sector give larger clients large long-term loans, creating great uncertainty in their portfolio and, on the other hand, in the financial services sector Due to their corporate purpose they tend to have large portfolios for the credits they offer to people. On the other hand, the second city that has high numbers of companies with and without risk is Barcelona, which has 13 companies with portfolio risk and likewise 10 without this risk, these statistics may be because they are the main cities in this country. Which can have large companies with large customers.

Financial risk is the result of the three risks analyzed above (liquidity, debt and portfolio), if two or more risks result in 1 means that the company is at financial risk. Therefore, after the previous analysis, 71.03% of the 107 companies

examined present financial risk, compared to 28.97% that do not have financial risk (Graph 6).

Likewise, it is observed that the financial risk by cities, where it can be seen that Madrid continues being the leader with the companies with and without risk. As in the previous analysis, Madrid has mostly industrial and financial services companies which are the largest sectors at risk. However, despite all the crises that the Spanish country has experienced, Madrid is the leader of this economy and for the years between 2013-2015 it was the city that recovered the most and was established after the crisis of 2008, becoming one of the main economic cities besides being the capital. This city began to recover and achieve a greater participation in the Spanish GDP as also began to decrease its unemployment rate. Barcelona is the second city in this statistic by cities, it can also be analyzed that this is also part of the list of the main cities in Spain, so it can have both large companies with financial risk and also some SMEs that have not been able to stand out the different financial situations that affect the country. Different situations such as the crisis of 2008 and its consequences have strongly affected the country's economy generating many companies have had to make cuts in income, employees, sales, production, among others and also has generated new and small companies do not survive more than five years in the market, a situation that significantly destabilizes the Spanish economy and generates great risks for the industry.



Graph6. *Financial Risk Indicator*

Source: *Own elaboration based on data taken from the CNMV*

Finally, in order to confirm the information analyzed, as described in Table 2. Independent samples test, all the variables were significant, indicating that each of them has incidence and allow explaining the financial risk. Table 3. Summary of the processing of the cases, shows that all the data object of the analysis were included in the model and none were given as lost cases. Table 4. Classification Table, evidence that the model classifies 74.2% of the companies without risk and 92.1% of the companies with risk, for which the model correctly explains and classifies 86.9% of the cases for the time series of 2015 and also this trend in the results between the three time series shows the consistency of the proposed model.

Table2. *Independent samples test*

Prueba de muestras independientes

		Prueba de Levene para la igualdad de varianzas		Prueba T para la igualdad de medias						
									95% Intervalo de confianza para la diferencia	
		F	Sig.	t	gl	Sig. (bilateral)	Diferencia de medias	Error típ. de la diferencia	Inferior	Superior
Liquidez	Se han asumido varianzas iguales	26,680	,000	3,498	105	,001	4,81961	1,37801	2,08727	7,55194
	No se han asumido varianzas iguales			2,277	30,638	,030	4,81961	2,11650	,50090	9,13831
Endeudamiento	Se han asumido varianzas iguales	,702	,404	-5,705	105	,000	-,33866	,05936	-,45636	-,22096
	No se han asumido varianzas iguales			-4,872	41,770	,000	-,33866	,06952	-,47897	-,19835
Cartera	Se han asumido varianzas iguales	4,609	,034	-3,331	105	,001	-98,55680	29,58636	-157,22110	-39,89251
	No se han asumido varianzas iguales			-3,586	65,958	,001	-98,55680	27,48369	-153,43041	-43,68320

FORMULA: $Yi = ß_0 + ß1\ Xi + m$

Table3. *Summary of the processing of cases*

Resumen del procesamiento de los casos

Casos no ponderados[a]		N	Porcentaje
Casos seleccionados	Incluidos en el análisis	107	100,0
	Casos perdidos	0	,0
	Total	107	100,0
Casos no seleccionados		0	,0
Total		107	100,0

a. Si está activada la ponderación, consulte la tabla de clasificación para ver el número total de casos.

Table4. *Classification table*

Tabla de clasificación[a]

Observado			Pronosticado		
			Riesgo		Porcentaje correcto
			No riesgo	Riesgo	
Paso 1	Riesgo	No riesgo	23	8	74,2
		Riesgo	6	70	92,1
	Porcentaje global				86,9

a. El valor de corte es ,500

Table5. *Summary of the model*

Resumen del modelo

Paso	−2 log de la verosimilitud	R cuadrado de Cox y Snell	R cuadrado de Nagelkerke
1	69,242[a]	,427	,610

a. La estimación ha finalizado en el número de iteración 7 porque las estimaciones de los parámetros han cambiado en menos de ,001.

Table6. *Omnibus tests on model coefficients*

Pruebas omnibus sobre los coeficientes del modelo

		Chi cuadrado	gl	Sig.
Paso 1	Paso	59,565	3	,000
	Bloque	59,565	3	,000
	Modelo	59,565	3	,000

Table7. *Variables in the equation*

Variables en la ecuación

		B	E.T.	Wald	gl	Sig.	Exp(B)
Paso 1[a]	Liquidez	-,494	,167	8,707	1	,003	,610
	Endeudamiento	5,678	1,516	14,026	1	,000	292,357
	Cartera	,014	,004	11,949	1	,001	1,014
	Constante	-3,343	1,024	10,651	1	,001	,035

a. Variable(s) introducida(s) en el paso 1: Liquidez, Endeudamiento, Cartera.

Given the summary of the data presented in Table 5. Summary of the model and in Table 7. Variables in the Equation, we can observe how the significance of the model and the variables of the equation keep the same tendency, where the significance is less than 0.05, for which the null hypothesis Ho is statistically rejected (Liquidity, debt and the portfolio do not negatively influence the financial risk of companies).

CONCLUSIONS

The characterization of the financial risk of companies in Spain during 2015, is necessary to know the status and management of them, and in this way, establish tools that allow the correct evaluation and risk management, to make the relevant decisions. Which guarantee their permanence in the future.

With the results obtained, it was possible to establish which companies presented risk of indebtedness, liquidity and portfolio recovery; Based on this, it was determined that 71.03% presented financial risk and 28.97% did not present financial risk. The highest and most risky indicators were those of indebtedness and portfolio recovery, making it possible to induce that companies over time and by operation continue their level of indebtedness, which becomes more risky because the company is not collecting the debt. portfolio in due time (60 days) so these must increase their debt exceeding 50% and compromising equity sufficiency.

It was also determined that the industrial sector is one of the most risky, which is significant since this is the second sector to leverage the economy and that, based on the strategies of each of the companies, it has allowed the development of new and better lines of business that they are generating growth as mentioned (Arribas Barreas, Josa, Duran Bravo, Garcia Hiljding, & San Miguel Aguirre, 2016).

Based on the National Securities Market Commission (CNMV), a sectoral analysis was carried out, where it was determined that the sectors with the greatest risk are those of industrial, services and construction, supporting the aforementioned by (Ministry of Industry, Energy and Tourism) which in "the agenda for industrial strengthening" highlights that the current economic crisis has highlighted the importance of the role of industry as a generator of growth and employment, leading to a fall in domestic demand.

The points presented above will not only allow for greater analysis of financial risk around SMEs, but will promote the use of instruments that can improve the risk situation presented by them and react in time to any eventuality.

When observing the results obtained in the LOGIT model, it was observed how in Table 2. Independent samples, all the variables are accepted and valid to explain the model and also in Table 5. Omnibus test on the coefficients of the model, the significance of the model and of the variables in the equation is less than 0.05, so the null hypothesis can be rejected (H0: Liquidity risk, debt and portfolio recovery do not influence financial risk) and in turn, how the results are validated against the financial risk presented by companies in the city of Medellín in the time series under study and analysis.

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