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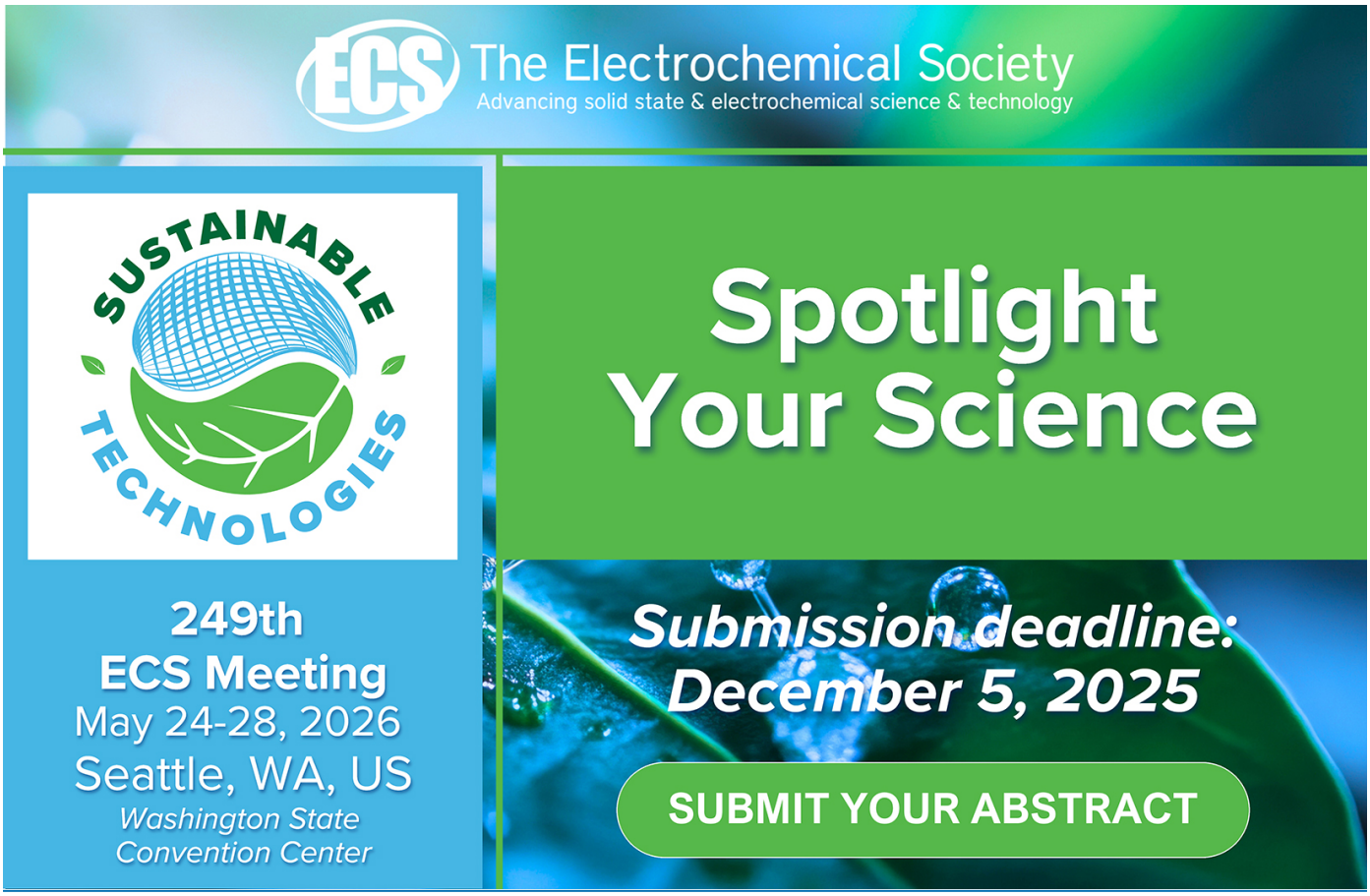
Use of computer tools in small and medium-sized enterprises: Statistical model for the creation of financial value in the productive sectors

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Use of computer tools in small and medium-sized enterprises: Statistical model for the creation of financial value in the productive sectors

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Abstract. This presents the use of computer tools for the evaluation of the generation of financial value of small and medium-sized enterprises in the municipality of Ocaña, department of Norte de Santander, Colombia. In this regard, since small and medium-sized enterprises are organizations that promote economic development, it became necessary, through the use of computer tools, to use a statistical model that evaluates in financial terms the value creation of the productive sectors. As a result, the research, using a descriptive and correlational methodology, established the computational tools to be used for the design of the statistical model, which will characterize the main determinants in the creation or destruction of value of the business structure by means of the variables of permanence, number of employees, and commercial activity. From the point of view of financial management, the financial structure was evaluated with the statistical model, establishing in terms of investment decisions, financing, and liquidity how these organizations are financially positioned; therefore, by means of statistical correlations, the relationship of dependence of financial management on the creation or destruction of value was determined.

1. Introduction

In an increasingly globalized world, where technology significantly impacts business organizations in the use of computer tools for processing and analyzing information, it is important to recognize how these represent a tool for decision making in organizations. Therefore, they are essential in the decision-making process to create value, as well as positioning in the market in which they are developed.

In Colombia, the business structure is largely made up of small and medium-sized enterprises, which cover the market's needs for goods and services, thus forming economic sectors of great importance for the country's development in terms of productivity, economic growth, and employment generation. In this regard, these companies must use technological tools for their processes that allow consolidation and permanence in a competitive market.

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Thus, this research exposes how the use of technological tools allowed, through a statistical model, to analyze the business and financial variables for the evaluation of the creation or destruction of value of the productive sectors of the municipality of Ocaña, Norte de Santander, Colombia.

In the first place, the computer tool Excel dynamic tables was used to characterize the sectorial composition of these organizations, in terms of classification of the productive sector they belong to, number of workers, years of operation, classification according to number of assets and more solid economic sectors of the business structure. From financial management, the information of the financial statements was consolidated determining the financial indicators of liquidity, indebtedness and profitability that were analyzed from the statistical behavior of these financial variables. Also, it was evaluated if these organizations created or destroyed value.

Finally, once each of the financial variables had been evaluated, the statistical model for correlation of dependent and independent variables was used to determine the impact of these on the creation or destruction of value.

2. Methodology

As a methodological basis, we used a quantitative analysis, using computer tools such as Excel and statistical software to interpret the financial data of the business organizations studied, making a review and analysis of secondary data to enable organizations in the financial decision-making process. The method used was descriptive and correlational, where the unit of analysis is the information provided by the “Cámara de Comercio de Ocaña” [1]; thus, by means of the computer programs, the information was analyzed on the existence of 57 small and medium-sized enterprises that make up the business structure of the municipality. For the characterization of the companies, the Colombian legislation that classifies the organizations was taken as a reference [2]. For the financial component, the value methodology was followed, defined as "a series of processes that allow the alignment of the executives with the strategic direction, so that the decisions tend towards the permanent increase of the company's value" [3].

In this regard, in order to determine the creation and destruction of value, a statistical model was made based on the theory of regression and correlation, defined as "the analysis of whether or not quantitative variables are related to each other" [4]; to this end, the correlation of financial indicators and value drivers as creation or destruction of value in organizations was considered

3. Theoretical framework

The theoretical foundation frames in the management of value, the management and financial sustainability of the small and average companies.

Accordingly, the theoretical foundation is given by the financial function, as well as it says in [4] it is the activity that involves all the functional areas of the company, with the purpose is to maximize the wealth; for which the financial managers have to take decisions of investment, liquidity, indebtedness and profitability that guarantee the fulfillment of the business aims surroundings to attain the financial basic aim [5].

The liquidity consists in the capacity of an organization to fulfil the payment of its obligations in the short term, satisfied depending how these expire [6].

According to the author [6] of the value establishes that the capital of work does reference to the resources that a company keeps to fulfill with the social object; taking into account this, it is possible to affirm that this capital corresponds to the sum of the accounts for earning, the inventories [3].

From the perspective of the generation of the profitability value, refers to all economic decision in the use material resources, humans and financial with the purpose to obtain a return of the investment, in consonance of putting them into business [7].

In harmony with the consulted literature, a statistical model of variable analysis was proposed with the variables of investment and profitability, in which, through the correlation coefficient, the dependence between liquidity, profitability and value creation with the objective of establishing the effect of proper management, decision making and the generation or destruction of value.

4. Results

4.1. Characterization of small and medium enterprises in Ocaña, Colombia

By 2000 according to the needs observed regarding the composition of the companies in Colombia and with the purpose to establish mechanisms to promote the companies, it was created the legislation [2], where it is established the classification of the companies in the country, to promote the development of the companies for the generation of employment in each one of the regions of the country; with the aim of the integration of the productive sectors for the profiting of small capitals that increase through the time.

According with the previous it is important to highlight that the investigation worked with the small and medium enterprises of Ocaña, Colombia, being "they are economic organizations that develop industrial activities, commercial and of services that combining main, work and productive means obtain a good or a destined service to satisfy diverse needs for a sector and a determinate market" [8].

It is how the investigation characterize the business fabric of Ocaña, Colombia, finding 57 companies constituted like legal persons, that develop commercial activities in economic sectors services, construction, commercial, industrial, extractive and agricultural, as shown in Figure 1. In this sense it is possible to observe that the solidest sector is the service sector, with 26 companies classified in 24 in average and 2 small; this a fortress for the productivity in the region, since according to studies of Luengo [9] the evolution of the employment between 1970 and 2010 confirms the continuous expansion in the service sector, it is more appreciable clearly, as in contexts of economic crisis (recession) its evolution is much better that the one of other sectors. In this order, the second in the level of importance is the sector of construction comprised of 13 small and 2 medium enterprises.

On the other hand, the commercial sector that during long time was the most important, occupies the third place in the classification of the business fabric, with a number of 8 small organizations and 4 average, noticing as it has diversified the business activity in the city. In the same sense and with lower representation it is found the industrial companies, extractives and agricultural, highlighting that exists a need to promote the productivity in terms to create companies of production, so that with this can improve the tax of employment in the region.

Accordingly with the previous and given the importance of each sector, it was conducted an analysis in years of permanence in the market, contributing to the municipality employment and income in terms of gross internal product, finding that 54% of the companies have worked between 1 and 5 years, considering that the business fabric is relatively young observing the need to realize a suitable financial management that allows the permanence of these young organizations that contribute to the municipality.

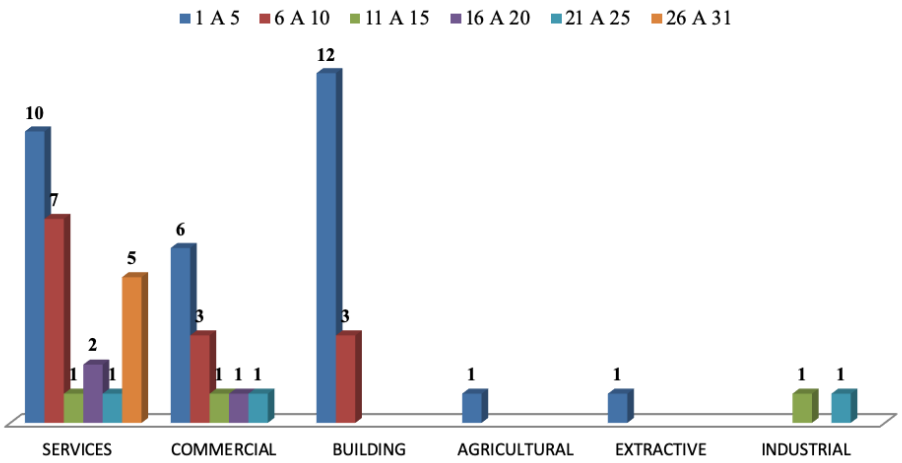


Figure 1. Time of constitution of the companies by economic sectors.

On the other hand, 46% remaining of the organizations are companies created between 6 and 31 years, being the companies created between 26 and 31 years have a low participation, given by the conditions of market and the financial decisions. In this sense, the service sector is the one who has a main consolidation, by the number of companies and the time of constitution, as it is observed in the Figure 1.

4.2. Characterization of the investment, the debt and profitability of the small and medium enterprises of Ocaña, Colombia

For the business organizations, it is of vital importance the financial management around the taking of decisions that promote the sustainability in the time of the small and medium enterprises.

In this sense and taking into account that Ocaña, Colombia, is situated in the zone of the Catatumbo and that the conformed by the municipalities of Ocaña, Carmen, Convención, Teorama, San Calixto, Hacarí, la Playa Belén, The Tarra, Tibú and Sardinata [10], zone that has existed armed conflict during decades, leaving to its step the peak of illicit activities and informality in the region, it is important the management and financial follow-up of the companies that are legally constituted, to guarantee the generation of employment in worthy conditions.

It is as well as, from the investigation posed a statistical model by means of the analysis of the random variables of investment, indebtedness, profitability and liquidity, that provide tools to improve the administrative results financial. In terms of investment [5] states that "it is the determination of the size of the company, that is to say, of the total volume of the active to keep the company in operation", it is by this that the investigation analyze as it has realized the investment the companies that constitute in business fabric of Ocaña, Colombia.

In this sense, from the 57 companies, the recovery is an inferior time to a year in 47 of them, what indicates that the activity or rotation done is in the short term, having the immediate availability to cover the needs of the companies, in the moment that this requires it.

On the other hand, the companies that realize its investment in the long term, are characteristic of the commercial activity, these 10 companies devote to social objects in which it needs a wide infrastructure to be able to develop its economic activity, such as constructors, real estate and maintenance services, as shown in Figure 2. Given the conditions of investment, it was realized an analysis of the decisions of finance, in Ocaña, Colombia, 25 companies do not use half of external finance to settle down the development of its activities, due to the fact that they possess a capital of suitable work that allows internal finance in the organizations.

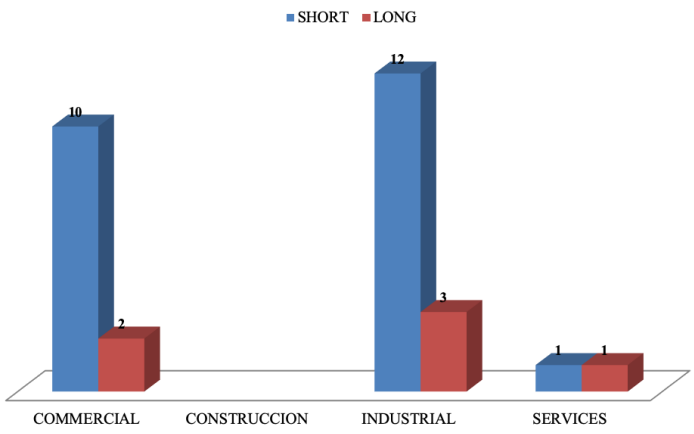


Figure 2. Investment of the small and medium-sized enterprises of Ocaña, Colombia.

In addition, when analyzing the inferior finance to a year, 26 companies resort to this mechanism concentrating its obligations in the short term, that is to say that its responsibility in front of third mechanisms has to fulfill in the economic exercise; on the other hand, the finance after a year that is to say in the long term, only is use by 6 companies of the population studied incurring a cost of the highest debt by the finance used and the interest of the cost of the money.

In this sense as it is observed in the Figure 3, the sector that more resorts to the external finance is the service and construction sector, followed by the commercial sector. Given these conditions, the investigation characterize the behavior of liquidity and cost effectiveness, grouping behavior of these indicators, in the sense to obtain suitable financial information for the taking of decisions.

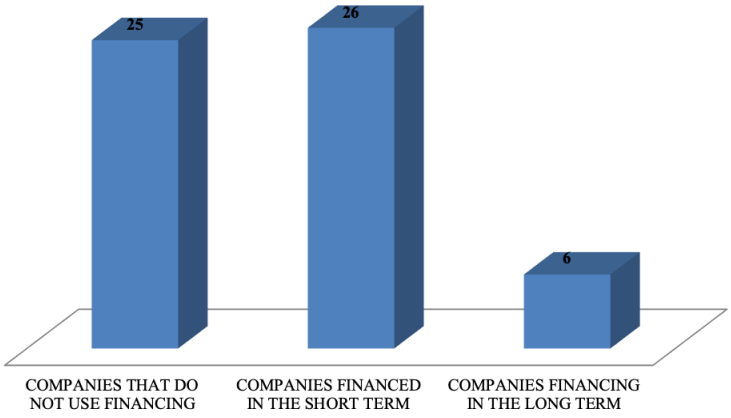


Figure 3. Finance small and medium of Ocaña, Colombia.

According to the previously posed, as it is shown in Figure 4, in Ocaña, Colombia, exist 3 companies which have problems of liquidity, since the active that possess in the short term, does not achieve them to fulfill with its inferior obligations to a year, for which it is necessary to establish strategies so that these organizations look for finance in the long term and like this give them liquidity to the company.

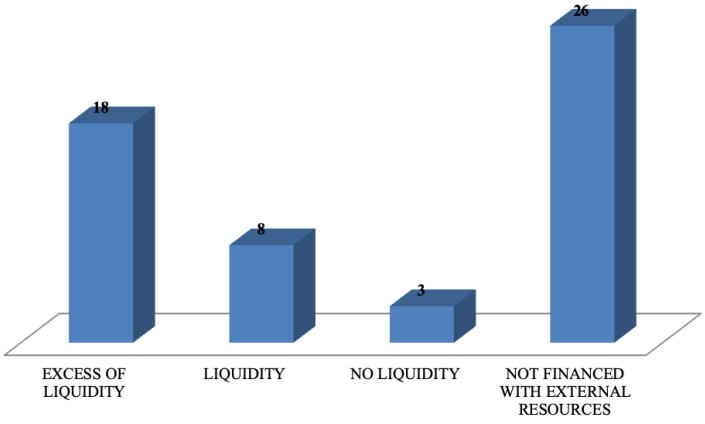


Figure 4. Analysis of the current reason of small and medium enterprises.

On the other hand, there are 18 companies that present an excess of liquidity, appearance that is important to signal because in the financial management can have unproductive money, for which it has to take decisions of investment that generate a main profitability for the organizations.

Accordingly, the indicator of common reason of the small and medium enterprises indicates that the companies of Ocaña, Colombia, possess the necessary liquidity to work, but due to its time it is necessary to establish decisions that allow that this excess of liquidity can be uses to maximize the profitability. According to [3], the profitability is the measure of the productivity of the committed bottoms in a business and from the point of view of the analysis on a long-term basis of the company, where the important is to guarantee its permanence and growth and therefore, the increase of its value, is the most important appearance to take into account.

The profitability of the active found, in the organizations observed that 99% of the companies are launching profitability on the investment realized in the active, noticing that some of them possess profitability upper to 100% of the investment realized, this die by that the business does not have competition what does that it was a well very profitable for the organization.

4.3. Statistical model of correlation of random variables for the creation of value of the small and medium businesses

The investigation from its methodological approach to determine the generation or destruction of value of the organizations by means of statistical technicians of correlation and regression, correlated the indicators of liquidity and profitability [11], see Figure 5.

Finding in first measure that when relating the common reason and the profitability of the organizations a low correlation refusal in what the investment, the fulfillment of the obligations and the profitability generated with an index of -0.357 establishing that these variables comport inverse proportional and the investment is not reflecting the levels of utility regarding the capital invested.

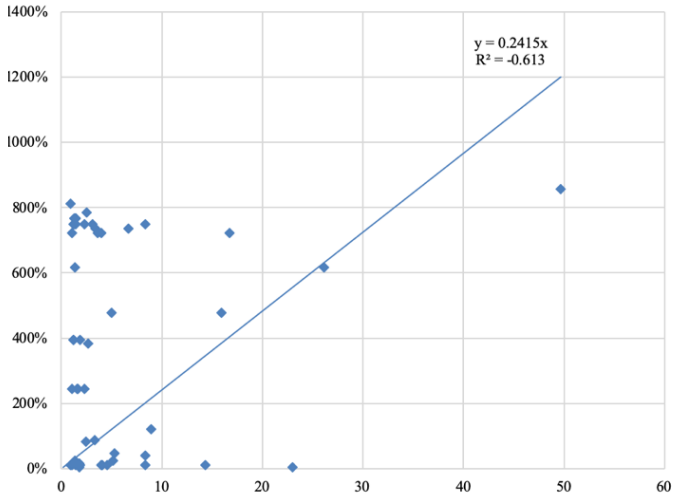


Figure 5. Correlation of the common reason and the profitability of the active.

5. Conclusions

Once the research was developed, it was concluded that computer tools are an indispensable instrument for the analysis of economic information of organizations for decision making, allowing them to be more competitive and to remain in the market. Thus, through the case study of small and medium-sized enterprises, it was possible to demonstrate that the use of Excel scenarios and dynamic tables, serve to effectively evaluate more efficiently the financial indicators for decision making in companies.

In this sense, once the tools were used to characterize the liquidity and profitability of small and medium-sized companies, it can be concluded that, in terms of the size of the organizations, it was found that most of them started out as small businesses. On the other hand, the sector with greater representation is the service sector, followed by the construction, commercial, agricultural, extractive, and industrial sectors, identifying that most of the organizations in time of permanence are organizations that are in the period of growth, where they are becoming known in the market.

With regard to liquidity, the current ratio indicator for small and medium-sized enterprises indicates that of Ocaña, Colombia, companies have the necessary liquidity to operate, but in turn they must establish decision-making that allows that excess liquidity to be used to maximize profitability. For the profitability of the companies, it was observed that 99% of the companies are showing profitability on the investment made in the assets, finding that some of them have returns higher than 100% of the investment made, this given that the business has no competition which makes it a very profitable asset for the organization.

On the other hand, the correlation of financial variables through the statistical model as a computational tool, determined that entrepreneurs in the period studied have profitability in line with the liquidity. However, the investment is very high for the return that investors are obtaining, a situation that in the long-term will affect the liquidity of organizations generating destruction of value.

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