

Correlation analysis between the financial indicators of administrative efficiency and net profit margin in Colombian companies.

Análisis de correlación entre los indicadores financieros de eficiencia administrativa y margen de utilidad neta en las empresas de Colombia

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ABSTRACT

This research addresses the financial results of the year 2015 of 24197 companies located in Colombia, subject to inspection, surveillance and control by the Superintendence of Companies. Financial indicators of administrative efficiency and net profit margin are calculated. The objective is to determine whether there is an inverse and significant relationship between the constructed indicators, through the calculation of Pearson's correlation coefficient. The methodology of the study is quantitative, explanatory, based on secondary sources. As a general conclusion, it is obtained with the analyzed data, there is no evidence that there is an inverse and significant linear relationship between the indicators worked.

Keywords: revenue; correlation; company; finance; management.

JEL: C12; C19; G00; G32; M19

RESUMEN

Esta investigación aborda los resultados financieros del año 2015 de 24.197 empresas ubicadas en Colombia, sujetas a inspección, vigilancia y control por parte de la Superintendencia de Sociedades. Se calculan los indicadores financieros de eficiencia administrativa y margen de utilidad neta. Se plantea como objetivo determinar si existe o no una relación inversa y significativa entre los indicadores construidos, a través del cálculo del coeficiente de correlación de Pearson. La metodología del estudio es cuantitativa, de tipo explicativa, con base a fuentes secundarias. Como conclusión general se puede asegurar que no se evidencia que exista relación lineal inversa y significativa entre los indicadores trabajados.

Palabras clave: beneficio; correlación; empresa; finanzas; gestión.

JEL: C12; C19; G00; G32; M19

Introduction

The administrative efficiency of a company can be appreciated from different perspectives. At the financial and accounting level, there is an indicator called "administrative efficiency", which in its mathematical approach relates administrative and sales expenses, and divides this magnitude by the total assets of the company for a given unit of time (LEGIS, 2014).

From a theoretical perspective, applied to economics and business, efficiency has been studied from different schools of thought. The ideal scope of efficiency will be, at the administrative level, that which potentiates the achievement of the company's objectives. To analyze this point, this research presents the approaches of technical efficiency, economic efficiency, dynamic efficiency, financial efficiency and administrative efficiency.

The main objective of this study is to determine whether or not there is a linear, inverse and significant relationship between the indicators of administrative efficiency and net profit margin. To address it, the following research question is proposed: Is there an inverse and significant relationship between the indicators of administrative efficiency and net profit margin for companies? The evidence of an inverse and significant correlation between these indicators could suggest that the so-called "administrative efficiency" indicator could be considered as a variable of business success, because the lower the result of this indicator, the higher the financial benefits achieved by the company, compared to its net income.

To address the stated objective, the information published by the Superintendence of Companies of Colombia in the Business Information and Reporting System (SIREM) is used, which presents the financial and accounting information as of December 31, 2015

of 26,533 companies that are subject to inspection, surveillance and control by said entity. Based on this information, indicators of administrative efficiency and net profit margin are constructed.

As mentioned in the official website of the Superintendence of Corporations (2019), this entity "is a technical body, attached to the Ministry of Commerce, with legal personality, administrative autonomy and its own assets, through which the President of the Republic exercises inspection, surveillance and control of commercial companies".

The main characteristic of the indicators to be addressed is that they are not affected mutually or unidirectionally, in a direct manner, by addition or subtraction results between sequential accounts. The information for the net profit margin indicator is the result of using two income statement accounts, while the administrative efficiency indicator is constructed based on one income statement account and one statement of financial position account. Although the expense accounts affect the net income result and, therefore, the result of the net profit margin indicator, the construction of the administrative efficiency indicator, which uses the expense accounts reported in the income statement, is conditioned with respect to the total assets of the company. This means that its results are not sequences of addition or subtraction operations.

With these indicators, the Pearson correlation index is calculated for the results of the companies under study as described in the methodology proposed; the data collected and the results obtained by the aforementioned procedures are analyzed.

technical expertise

In the economic sphere, as mentioned by Gumbau (1998), technical efficiency is focused on the maximum use of resources, to their maximum exploitation, "to the degree of success in the utilization of productive resources" (p. 68), in other words, technical efficiency is focused on the non-generation of idleness in the means of production.

Cachanosky (2012, p. 53) mentions that "Technical efficiency reflects whether resources are exploited to the maximum of their productive capacity or not" and does so by referring to "the production possibilities frontier", which according to Samuelson and Nordhaus (2010) such frontier "shows the maximum amounts of production that an economy can obtain, given its technological knowledge and the amount of possible inputs" (p. 10). Although the authors cited above refer to "an economy", this concept is applicable to a company, because just like an economy, the company has limited resources, which leads it to make decisions regarding their use.

The production possibilities frontier (PPF) presents the production relationship of more than one product based on the use of the means of production, since these are limited. Table 1 represents a hypothetical relation of production of goods by a company that, due to the use of infrastructure and raw materials, must choose between one or the other.

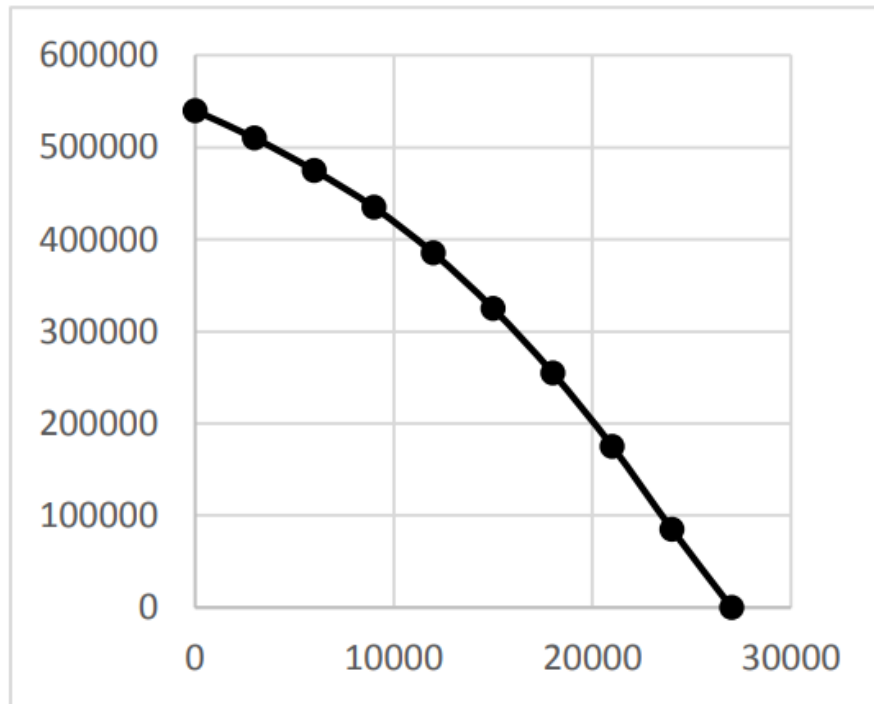
Table 1 Hypothetical production relationship of a company - selection between two products

Situation of production	Quantities produced of		Situation of Production	Quantities produced of	
	Product A	Product B		Product A	Product B
A	0	540.000	F	15.000	325.000
B	3.000	510.000	G	18.000	255.000
C	6.000	475.000	H	21.000	175.000
D	9.000	435.000	I	24.000	85.000
E	12.000	385.000	J	27.000	0

Note: Prepared by the authors.

Table 1 reflects the maximum production that the company, in the example, can have with respect to the two products it manufactures, according to the maximum exploitation capacity of its means of production. This production does not present idle capacity in each related production situation. Figure 1 represents the maximum production capacity of the company in various scenarios, which would be given according to the decisions made by the company regarding the use of the means of production it has, which in this case exemplify the production situations presented, and any interval found in the curve.

Figure 1 Hypothetical production relationship of a company

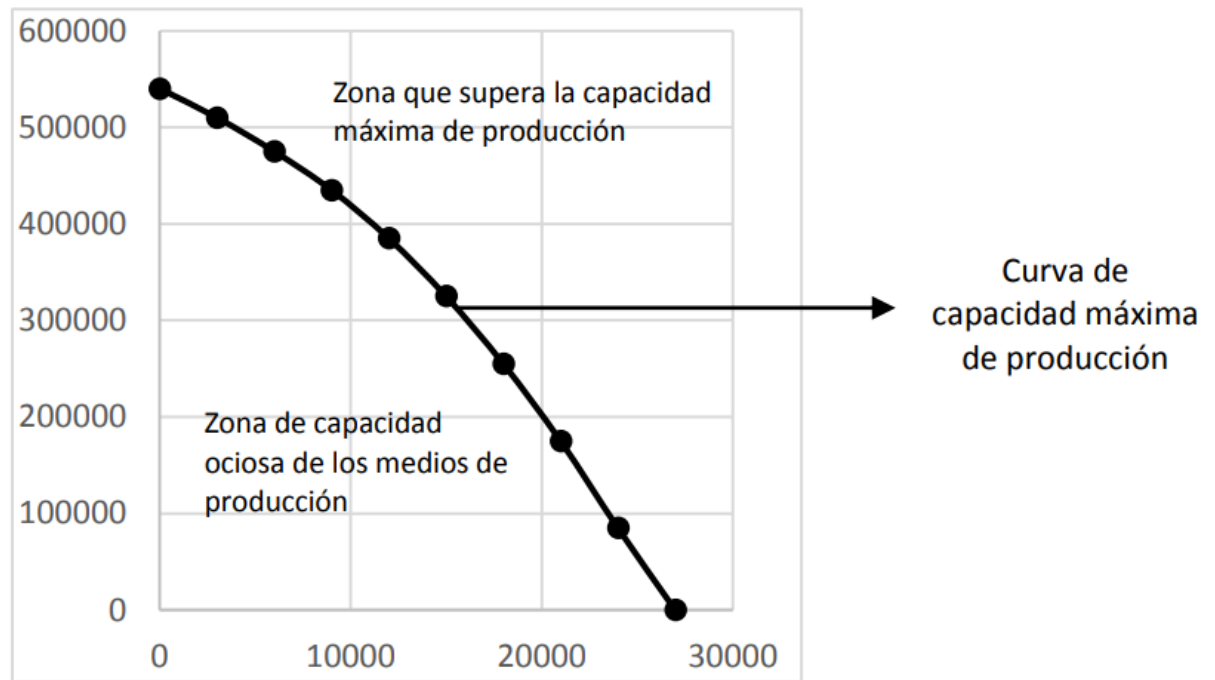


Note: Prepared by the authors.

Cachanosky (2012) highlights that technical efficiency is achieved when an economy (which also applies to a company, keeping the proportions, but in essence it is the same) is on the production possibilities frontier, i.e., in other words, when there is no idle capacity on the part of the means of production.

Returning to Figure 1, the curve it presents illustrates the maximum production capacity of the company in the example. Below the curve the company will have idle capacity, which is the same as a state of unproductivity; on the curve the state of technical efficiency is achieved; above the curve it will only be possible to be above it if there is a change that increases the company's production capacity. Figure 2 illustrates the above.

Figure 2 Illustration of inefficiency, technical efficiency, and efficiency overcoming



Note: Prepared by the authors.

Technical efficiency focuses on production capacity and its maximum utilization. We will speak of technical efficiency when production is at the production possibilities frontier, which means that the company has reached maximum efficiency in the use and utilization of the means of production, so that, at that point, the company does not have idle or unproductive resources.

Economic efficiency

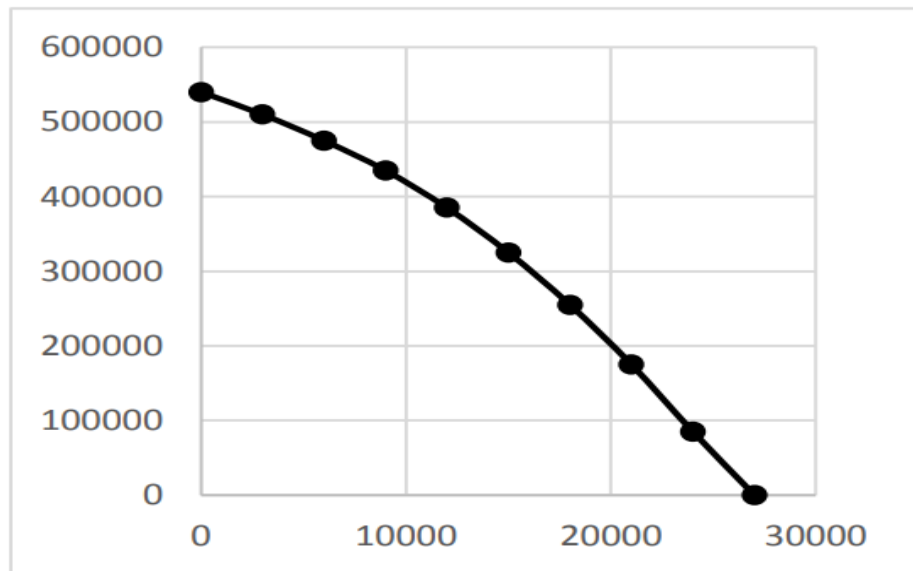
With respect to economic efficiency, it is necessary in the first instance to mention that its conception (its actual meaning) may vary according to the economic school to which it is related. As mentioned by Agafonow (2007, p. 7) (...) "market socialists and paretian liberals, on the one hand, and austro-liberals, on the other, did not give the same meaning to the concept of 'economic efficiency'" (...). This paper analyzes economic efficiency in direct relation to technical efficiency.

Economic efficiency, unlike technical efficiency, goes beyond manufacturing by production capacity, and analyzes a crucial factor, the demand for the goods being manufactured. According to Bernanke and Frank (2007) economic efficiency is the "situation where the socially optimal quantity of all goods and services is produced and consumed" (p. 87).

Cachanosky (2012) mentions with respect to economic efficiency that the main dilemma in production lies in the allocation of resources for the adequate production, according to market demand, of goods and services. Regarding economic efficiency, the author mentions that it is "That point, on the PPF, which at the same time is used to produce the goods demanded by consumers (...) Otherwise we are only in the presence of technical efficiency" (...) (Cachanosky, 2012, p. 57).

The production possibilities frontier, mentioned in the previous paragraph, presents the maximum production, using the total capacity of the resources available to a company. This represents a curve that illustrates the total production mix, for the previous example, of two products, based on the restrictions of the means of production available. However, on this curve, only one point will reflect economic efficiency. Returning to the information in Table 1, this reflects the maximum production that the company in the example can have, with respect to the two products it manufactures, in accordance with the maximum operating capacity of its means of production. This production does not present idle capacity in each related production situation. Figure 3 represents the maximum production capacity of the company in various production scenarios.

Figure 3 Hypothetical production ratio for a company



Note:

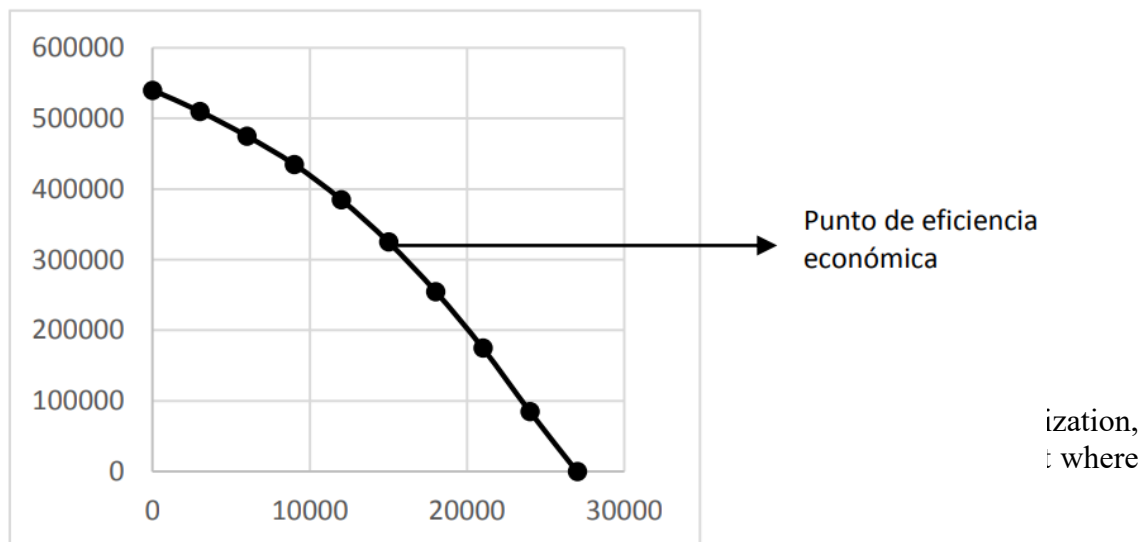
Prepared by the authors.

Economic efficiency is linked to technical efficiency. Technical efficiency is linked to the allocation of resources, to the non-leisure of resources, and to the scope of the production possibilities frontier. According to Blanco (1987) (...) "a productive process or exploitation is economically efficient when it is both technically and allocatively efficient" (p. 216). In this case, such efficient or adequate allocation of resources, and the maximum use of these, only occurs at the point where what is produced is completely absorbed or demanded by the market.

Based on the above-mentioned concept of economic efficiency, this is given if what is produced is demanded in its entirety by consumers. Returning to Figure 3, the curve it shows illustrates the maximum production capacity of the company in the example. This curve is characterized by the fact that there is no idle capacity in the use of resources and means of production. Economic efficiency only occurs at one point of this curve, which is the point at which everything produced is demanded by buyers.

For the hypothetical example worked on, it is established that the point of economic efficiency is at production situation F, which denotes the production of 15,000 units of product A and 325,000 units of product B, because the maximum market will demand 15,000 units of product A, which is the product that, for the example, leaves the company with the highest unit contribution margin. Regarding product B, the market demands a quantity greater than 325,000 units, which makes its production viable. Figure 4 illustrates the point of economic efficiency for the company in the hypothetical example:

Figure 4 Illustration of technical efficiency and economic efficiency



everything that is produced is demanded by consumers, from the point of view of greater profitability for the company.

However, and based on Von Hayek and Plaza (1997), this concept of economic efficiency is based on the stipulation of a series of rational assumptions, given for an individual mind, and translated mathematically, which limits its real scope, because these assumptions (such as homogeneous knowledge) are not realities in the market. In addition to this, Kirzner (1997) emphasizes the existence of *unsuspected ignorance* in the market, emphasizing what could be called non-absolute information, or what is the same as the fact that not all members of a market handle the same information.

Dynamic efficiency

Regarding dynamic efficiency, its concept, as proposed by Huerta de Soto (2004) goes hand in hand with the entrepreneurial function, when he mentions that "the criterion of dynamic efficiency is indissolubly linked to the concept of entrepreneurial function (...) entrepreneurial function, understood as the main driver of creativity and coordination that arise spontaneously in the market" (p. 26). In this sense, the author focuses his concept on the role of what he defines as the entrepreneurial function. This entrepreneurial function is defined as "the typically human capacity to realize the profit opportunities that arise in the environment and to act accordingly to take advantage of them" (2004, p. 26).

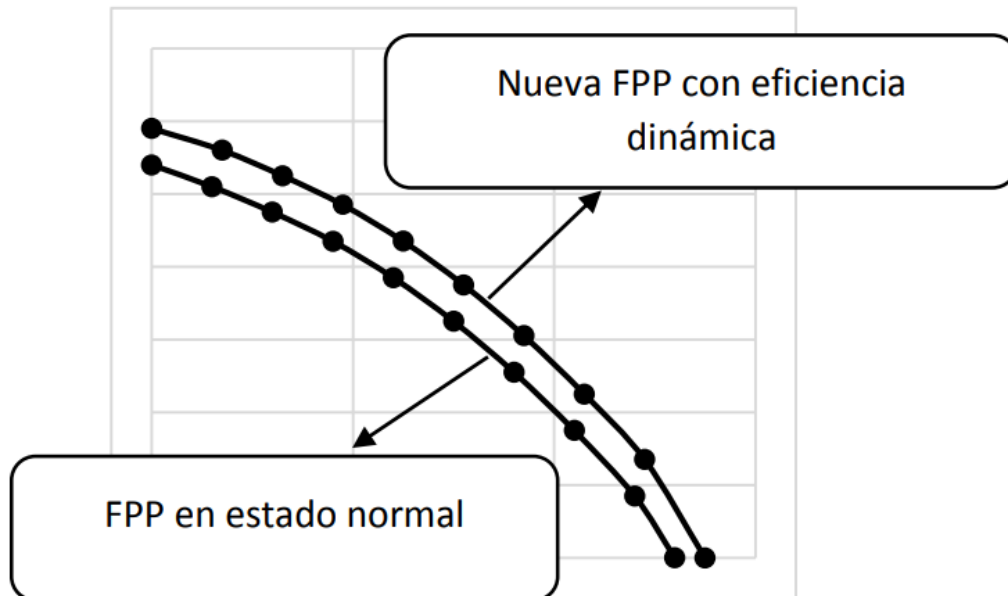
Although the meaning of a company in the field of social sciences is broad, it can be defined as a complex unit that seeks profit for its owners, partners or shareholders, through the production, distribution and/or marketing of goods and/or services (Barrera and Parra, 2020), with which it serves a market.

As can be seen, to speak of the entrepreneurial function is the same as to speak of the firm, or what it represents in terms of its purpose and its performance in the market. Regarding its performance in the market, Huerta de Soto (2004) mentions, in view of the concept of dynamic efficiency, that the entrepreneurial function always generates new information; by its very nature it is essentially creative; it transmits information; it is coordinating; it is competitive; it never stops or exhausts itself.

Cachanosky (2012) assures that dynamic efficiency occurs thanks to the creativity of entrepreneurs and their investments, since these two generate changes in the "consumers' value scale" (p. 76). In the same way, the author assures with respect to dynamic efficiency that "the important thing is to be constantly expanding the PPF to achieve economic development".

As previously mentioned, when analyzing Figure 2, above the curve representing the PPF is the area that exceeds the maximum production capacity, and to reach this state it is necessary that there are changes that increase the production capacity of the company; these changes are generated, from dynamic efficiency, by the entrepreneurial function, which can be associated with creativity, innovation, the consumers' value scale, among others. Figure 5 represents the effect of dynamic efficiency versus PPF.

Figure 5 Illustration of PPF and new PPF with dynamic efficiency



Note: Prepared by the authors.

Huerta de Soto (2004) assures that according to Israel Kirzner's studies, the concept of dynamic efficiency can be defined as "the capacity to drive business insight and discovery of knowledge that was not previously conceived to be acquired" (p. 31). This impulse of which the author speaks is what makes it possible to expand PPF, always taking into account the concepts of economic efficiency and dynamic efficiency (not only technical efficiency), although it is clear that dynamic efficiency goes beyond economic efficiency.

Administrative efficiency

In management, there are several meanings of the word efficiency, sometimes influenced by the era in which it was used. Taylor (1994) speaks of maximum efficiency, focusing his discourse on the worker's capacity to carry out his operational activities. However, he focuses this efficiency towards the term "maximum prosperity" of the company's owners, but also of its workers.

For Taylor, management should seek the maximum prosperity for the employer, as well as for the employee, hence the need for maximum worker efficiency, which is only achieved when the worker yields his highest daily production. Taylor's concept is not surprising, coming from industry at a time when industrial production played a leading role in the economy of the United States.

In management, there are three words that are sometimes mistakenly taken as synonyms, but which are far from being so: efficiency, efficacy and effectiveness. These words should not be confused. Efficiency, as mentioned by Bernal and Sierra (2013) can be understood as "the ability of people and organizations to obtain maximum results with the minimum amount of inputs (...) efficiency refers to the optimal use of resources" (p. 17). Similarly, the authors state that efficiency "has to do with the use of resources in order to best produce goods or services in organizations".

Amaru (2009) says about efficiency that it "indicates when the organization uses its resources productively or economically" (p. 6). In this case, organization also refers to company (Barrera, 2017). For his part, Münch (2014), with respect to the concept of management, assures that efficiency "is obtained when the objectives are achieved on time and with maximum quality" (p. 21).

Lewis and Graham (1993, p. ix) in the introduction to their book entitled "Administrative Efficiency" emphasize the role of the manager and the appropriate use of the resources available to achieve this efficiency. The authors point out that the manager "is any person who has formal responsibility for achieving results through the management of resources".

As can be seen, there is no unified concept of efficiency in terms of management; however, it can be said that its meaning is related to the final result of actions emanating from the company, as a system made up of people. This final result, as can be seen in the aforementioned definitions, is closely related to the achievement of "maximum

prosperity", "maximum results", "optimal use of resources", and "achievement of objectives".

Financial efficiency

Finance at the corporate level plays a very important role. The objective of finance applied to the administrative field (financial management) is broad; in fact, depending on the author, more than one can be identified. Whatever the field, it is possible to ensure that it will involve the process of rational decision making, hand in hand with the objectives of the company (Nava, 2009).

After an extensive search for information in different databases, it was not possible to find a definition of financial efficiency. Even so, this concept is linked to optimization in pursuit of economic benefits (Mendoza, 2014). It is possible to ensure that financial efficiency will be linked to the achievement of the "maximum prosperity", "maximum result", and with the achievement of the objectives of the financial field. It should be noted that, as mentioned by Aristizabal and Salazar (2011), the different definitions of efficiency have in common the relationship between resources and results.

Gitman and Zutter (2016) state that the objective of the company, in terms of financial management, is "to maximize the wealth of the owners of the company, i.e., the shareholders" (p. 10). For his part, Garcia (1999) mentions in relation to the basic financial objective (BFO) of a company that "The company's BFO is the maximization of its value or, in other words, the maximization of the owner's wealth" (p. 5).

Research such as Aristizabal and Salazar (2011), Torres et al. (2013), Fontalvo et al. (2018), which within their publications tacitly present in their titles the words *financial efficiency*, focus the data analysis on the financial results achieved by companies.

Materials and methods

In order to answer the research question and address the general objective, a quantitative, non-experimental, cross-sectional, correlational research methodology is developed, which seeks to identify patterns in the financial results as of December 31, 2015, obtained by the companies that are subject to inspection, surveillance and control by the Superintendence of Companies of Colombia, complying with the space and time standards set forth by Hernández et al. (2016). The main source of data is the information published in the Business Information and Reporting System (SIREM) of the Superintendence of Companies of Colombia, financial statements as of December

31, 2015, so it is constituted as a secondary source. The research design is classified as documentary.

The information presented in the SIREM of the Colombian Superintendence of Companies includes information from the balance sheet (statement of financial position), income statement, and cash flow. We work with the financial information of each company that: presents operating income for the year 2015; presents assets for the year 2015.

Based on the related information, the financial indicators of administrative efficiency and net profit margin are calculated for each company, which are analyzed by contrasting the results obtained by the companies under study, based on the Pearson correlation coefficient presented by the results of the two indicators.

The administrative efficiency indicator is classified as an activity indicator (Gitman and Zutter, 2016; Ross et al., 2013) and its result "indicates the % invested of assets, which is directed to cover administrative and sales expenses" (LEGIS, 2014. p. 510). This indicator is the result of adding the administrative and sales expenses (from the income statement) and dividing this result by the value of total assets (from the statement of financial position), as presented in Table 2.

Table 2

Administrative efficiency indicator

Indicator name	Formula (1)
Administrative efficiency	$(\text{Administrative expenses} + \text{cost of sales}) / \text{Total assets}$

Note. Adapted from LEGIS (2014).

For its part, the net profit margin indicator is classified as a profitability indicator (Gitman and Zutter, 2016; Ross et al. 2013) and its result indicates the "percentage of net sales that generates after-tax profit in the company" (LEGIS, 2014. p. 510). This indicator is the result of dividing the value of net income (from the income statement) by the total net sales (from the income statement), as presented in Table 3.

Table 3

Net profit margin indicator

Indicator name	Formula (2)
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Net profit margin	Net income / Net sales
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Note. Adapted from Cordoba (2014).

Pearson's correlation coefficient determines the degree of relationship or correlation that may exist between two variables. As mentioned by Martinez and Levin (2011, p. 466) this coefficient is defined as "the square root of the squared correlation coefficient or coefficient of determination". The correlation coefficient gives a result that lies between the interval of -1 to 1. If the result is positive, it means that the variables have a direct relationship; and if the result is negative, it means that the variables have an inverse relationship. The relationship, direct or inverse, will be stronger if the result is closer to 1 or -1 respectively (Martinez and Levin, 2011).

The Statistical Package for the Social Sciences (SPSS), version 23, was used to organize and process the data obtained from SIREM, which complied with the established selection parameters.

Results

The Superintendence of Corporations published information on financial statements, balance sheet (statement of financial position), income statement and cash flow statement of 26,533 companies subject to inspection, surveillance and control by this entity. This publication can be consulted and downloaded from the corporate information portal - PIE, in the Corporate Information and Reporting System - SIREM. Of the 26,533 companies, 24,197 presented operational income and assets as of December 31, 2015, which corresponds to 91.20% of the total of this population.

Based on the accounting and financial information of the 24,197 companies that meet the parameters established in the methodology, the financial indicators of administrative efficiency and net profit margin were calculated. The results are presented below.

Administrative efficiency indicator

With the SIREM information published by the Superintendency of Corporations, according to the methodology proposed, the accounts "Administrative operating expenses" coded with number 51, "Sales operating expenses" coded with number 52, both from the statement of income, and the "Total assets" account, which is not coded, were taken as a basis. The formula established in Table 2 was applied to these accounts. The results are shown in Table 4.

Table 4 Descriptive results of the administrative efficiency indicator

Measure	Result
Arithmetic mean	0,46
Standard deviation	22,76

Note: Prepared by the authors.

As can be seen in Table 6, the arithmetic mean of the 24,197 data calculated for the administrative efficiency indicator, for the companies subject to this study, was 0.46, which means that, on average, the companies subject to inspection, surveillance and control by the Superintendence of Companies of Colombia, which presented operating income and assets as of December 31, 2015, for each peso recorded in total assets, the company had 0.46 pesos as administrative and/or sales expenses, which represents 46% of total assets. Now, regarding the standard deviation of the arithmetic mean, it was at 22.76, which represents a deviation of more than 49 times the arithmetic mean. In general terms, the standard deviation as a measure of dispersion reflects that, on average, the result of the arithmetic mean can move 22.76 weights in a positive or negative way, in other words, that on average the result of the administrative efficiency indicator for this population was between 23.22 and -22.29. This result presented a high dispersion.

From the data observed, the main characteristic of the results of this indicator was that no company presented negative results; in all cases the result was positive. The high dispersion among the results obtained by the companies is also evident.

Net profit margin indicator

As with the administrative efficiency indicator, this indicator was constructed with information from SIREM, published by the Superintendence of Companies of Colombia. According to the methodology proposed, the accounts "Operating income" coded as number 41, and "Profit and loss" coded as number 59, both from the income statement, were used as a basis. The formula established in Table 3 was applied to these accounts. The results are presented in Table 5.

Table 5 Descriptive results for net profit margin indicator

Measure	Result
Arithmetic mean	10,51
Standard deviation	1.595,54

Note: Prepared by the authors.

As can be seen in Table 7, the arithmetic mean of the 24.197 data calculated for the net profit margin indicator, for the companies subject to this study, was 10.51, which means that, on average, the companies subject to inspection, surveillance and control by the Superintendence of Companies of Colombia, which presented operating income and assets as of December 31, 2015, for every peso in net sales that the companies had, on average, 10.51 pesos became net profit, which means that out of 100% of net sales, on average, 1,051% became net profit.

This result is distorted due to the fact that 634 companies (2.6% of the total number of companies under study) presented profits greater than the same net income; on average, they presented a net profit margin indicator of 441.94, with a standard deviation of 9,853.07. For these specific companies, the net profit margin indicator was, on average, between 1 peso and 247,804 pesos. In general, the companies subject to this study presented, on average, a net profit margin indicator between 1,606.06 pesos and -1,585.03 pesos. The main characteristic of the results observed for this indicator was that they showed a high dispersion among the results obtained by the companies.

Pearson correlation coefficient

Calculating the financial indicators of administrative efficiency (whose data come from the financial statements of financial position and results) and net profit margin (whose data come from the income statement), for all the companies subject to this study, according to the methodology proposed, a total of 24,197 data were available for each indicator. The SPSS version 23 and MS Excel 2016 programs were used to calculate the Pearson correlation coefficient between the two indicators. The results are presented in Table 6:

Table 6 Pearson's correlation coefficient result

		Administrative efficiency indicator	Net profit margin indicator
Administrative efficiency indicator	Pearson Correlation	1	0,000
	Sig. (2-tailed)		0,982
	N	24.197	24.197

Net profit margin indicator	Pearson Correlation	0,000	1
	Sig. (2-tailed)	0,982	
	N	24.197	24.197

Note: Prepared by the authors.

When running the formulas of "`=COEF.DE.CORREL`", and "`=PEARSON`" in MS Excel 2016, the result obtained for the Pearson correlation coefficient for the two indicators is -0.00014497 (minus zero with one hundred and forty-four thousand nine hundred and sixty-six billionths), which explains why in the SPSS program the result yielded is 0.000.

Conclusions

For the overall results of each indicator, the arithmetic mean and the standard deviation of the arithmetic mean were calculated for 100% of the selected population, as specified in the methodology of this research.

The administrative efficiency indicator showed an arithmetic mean of 0.46, with a standard deviation of 22.76. This standard deviation is equivalent to more than 49 times the arithmetic mean of the indicator for the total population. This standard deviation is equivalent to more than 49 times the same value of the arithmetic mean of the indicator for the total population, a figure that reflects the high dispersion among the data recorded. This indicator in particular, for all the companies analyzed, shows a positive value.

A similar phenomenon occurs with the net profit margin indicator as with the administrative efficiency indicator, in terms of the dispersion of the arithmetic mean of the indicator. The arithmetic mean of this indicator was 10.51, with a standard deviation of 1,595.54, a figure that represents more than 151 times the arithmetic mean. This result is highly distorted due to the fact that 634 companies presented profits greater than the same net income, a phenomenon that can only be explained by the existence of high non-operating income, which in all cases exceeded the net operating income for the period.

Given the above, the Pearson correlation index was calculated for the two indicators. This index showed a negative correlation, which means that there is an inverse relationship, but, although inverse, it was not significant, since its value was -0.000144966, a figure very close to absolute 0.

The index has a low significance level because the p-value is greater than 5% (98.2%), which supports the correlation value obtained, which comes from a population whose $p\text{-value} = 0$ (or at least as close to 0), so it can be concluded that both variables are not related.

In light of the theory presented, as seen from the standpoint of economic efficiency, dynamic efficiency and administrative efficiency, it can be assured that their impact (of each type of efficiency mentioned) will be reflected in the financial results achieved by the company. In this case, empirically, an attempt was made to demonstrate the existence of a relationship between the administrative efficiency indicator and the financial results of economic benefit (net profit) in a given period. We worked with the accounting and financial information of a significant population; the result in the first instance shows that there is an inverse relationship between the indicators analyzed, but not significant, null.

Based on the research question posed, which was "Is there an inverse and significant relationship between the indicators of administrative efficiency and net profit margin for the companies?" it is possible to say that there is an inverse correlation, but minimal, practically null, according to the results obtained with the analysis of the accounting and financial information of the 24,197 companies that were subject to inspection, surveillance and control by the Superintendence of Companies of Colombia, and that presented operating income and assets as of December 31, 2015. The above based on the fact that the result of the Pearson correlation index between the administrative efficiency indicator and the net profit margin indicator, for the described population, presented a negative value of 0.000144966. In addition, the level of significance showed that there is no linear correlation between the two indicators (98.2%).

For future research processes along the same lines, it is suggested that a similar process be carried out, differentiating between economic sectors, economic activities, area of operation, size of the companies, and classifications that may lead to more comparable information and possible patterns for analysis.

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