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Balanced Scorecard in the strategic planning of a construction company

Roberth Frias[a, *], Maria E. Medina[a]

[a]Universidad Cesar Vallejo, Lima, Peru.
roberthfrias@gmail.com

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Resumen

La presente investigación se enfocó en la herramienta de gestión estratégica Balanced Scorecard y el planeamiento estratégico, como una guía que oriente el desarrollo de la gestión de las empresas, la comunicación y la funcionabilidad de la estrategia usando KPIs que permiten identificar, mantener el control, incrementar la eficiencia y el logro de resultados óptimos. Para el análisis hipotético deductivo se agruparon factores específicos que afectan el desempeño de la gestión empresarial dentro de dos variables: Balanced Scorecard y Planeamiento Estratégico. El Objetivo del trabajo ha sido demostrar la incidencia del Balanced Scorecard en el planeamiento estratégico de una empresa constructora. Para sustentar la investigación se abordaron las siguientes teorías: la Financiera, la Económica de la Empresa, de los Costos de Transacción, de redes, de la organización, de la dependencia de los recursos, de la administración estratégica y del diagnóstico empresarial. El resultado obtenido confirma la hipótesis de que existe incidencia significativa del Balanced Scorecard en el planeamiento estratégico de las empresas constructoras. En conclusión, la empresa constructora ha obtenido mejoras significativas en los resultados en cada uno de los indicadores evaluados con la implementación del Balanced Scorecard, demostrando mejoras en sus resultados de gestión, afirmando que existe un mejor desempeño y control de la gestión permitiéndoles alcanzar los objetivos organizacionales trazados.

Palabras clave: Balanced Scorecard, planeamiento estratégico y estrategia

Abstract

This research focused on the strategic management tool Balanced Scorecard and strategic planning, as a guide to guide the management of companies, allowing communication and the functionality of the strategy using KPIs that allow to identify, maintain control and increase efficiency and the achievement of optimal results. For the deductive hypothetical analysis, the specific factors that affect business management performance were grouped into two variables: Balanced Scorecard and Strategic Planning. The objective of the work was to demonstrate the impact of the Balanced Scorecard in the strategic planning of a construction company. In order to support the research, the following theories were approached: the Financial Theory, the Economic Theory of the Company, the Transaction Costs, the Network Theory, the Organization Theory, the Dependence on Resources, the Strategic Management Theory and the Business Diagnosis Theory. The result obtained confirms the hypothesis that there is a significant incidence of the Balanced Scorecard in the strategic planning of construction companies. In conclusion, the construction company has obtained significant improvements in the results in each of the indicators evaluated with the implementation of the Balanced Scorecard, demonstrating improvements in their management results, affirming that there is better performance and management control allowing them to achieve the organizational objectives set.

Keywords: The Balanced Scorecard, strategic planning and strategy.

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1. Introduction

The construction companies in Northern Lima, have the need to achieve better levels of performance and efficiency in each of the areas of the company, including management area (operational and functional), this situation demands from the construction companies, have an effective strategic plan, which translates, designs and implements viable management solutions to achieve its competitive strengthening, through its intellectual capital and an efficient management that seeks compliance with the guidelines, action plans, goals and objectives that consolidate the mission and vision of the construction companies in highly competitive markets.
Faced with this situation, a paradigm shift is justified in the way construction companies are administered and managed in Northern Lima, in order to efficiently and effectively promote action plans that prioritize the most relevant management models to achieve the objectives and goals set, generating models that provide a structural framework for designing, developing and executing Strategic Planning in the medium term; involving all departments and areas of the company, improving the relations of rational communication based on permanent dialogue, which seeks the interrelation of a qualitative and quantitative discourse, which speaks of a comprehensive strategic planning, rational and dialogic, which requires that there are principles and values implicit in the nascent business culture, relating them to solidarity, exchange, cooperation, productivity, competition and cooperation, among other strategic inducers of change, that support not only the permanence in time, but also the growth and consolidation of construction companies in North Lima in attention to the complementary character of the subject-object relationship that favors the organization, not only in the design of management strategies, but also in the interaction of the processes and relations of the triad society, sustained development and company.

This research is based on the search for antecedents such as: Vilca et al (2012). developed a correlational research, whose objective was to contribute and promote the competitiveness of construction companies, is raised as a vision, that by 2020, the construction sector of the Department of Liberty has competitive companies that will execute sustainable projects and increase their profitability by 5%, minimizing their costs with an orderly management of their processes, were raised short and long term objectives, seeking to boost competitiveness to implement projects with quality and efficiency and increase profitability levels. The choice of strategy consists of a set of activities that are executed in a synchronized manner so that a company can look to the future and achieve the vision that has been proposed. In addition, the strategic process is dynamic and interactive, in which the entire organization participates, evaluating results and correcting any distortions that may become evident. The Balanced Scorecard and the strategic plan developed in this document were elaborated according to the Sequential Model of the Strategic Process.

Araujo (2009) carried out a correlational research, the objective of which was to analyze the perception of cause and effect of the employees of the company researched on their degree of acceptance, with respect to the dimensions of organizational climate on: management style, recognition, autonomy, enthusiasm and support, reward and innovation and how the results achieved can impact on business strategy from the perspective advocated in the literature of the Balanced Scorecard. It is remarkable the emergence of the Balanced Scorecard - BSC characterized as a management tool that helps in the dissemination and practical application of the company's strategy, that is to say, the BSC contains a system of financial and non-financial measures, duly selected that corroborate with the organization in the execution of its key success factors, which are defined in the strategic vision of the company.

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The most remarkable conclusion is the implementation of the business strategy based on the Balanced Scorecard which suggests that the organization emphasizes an organizational climate that favors the following aspects: Motivation, individual initiative, a climate of support and innovation, the design of an incentive and remuneration plan in accordance with workers' expectations and a policy of participation in decision-making. It also highlights the importance of the role of leaders and their actions to achieve the organizational changes necessary for the development of business strategy. In this context, the proposed organisational climate instrument can provide relevant information for managers to act favourably in the formulation of the organisation's strategy. It was determined that management strategies support the Balanced Scorecard as an integrated and balanced tool in the task of evaluating the progress made orienting the future of the organization based on a strategic plan, where the purpose of the management process is to make the system move completely towards its stated objectives, so it has to be that control is not an end in itself, but is a means to achieve the end, improving system operations and regulating it (homeostasis) to achieve the expected results.

In addition, Estrada (2007) developed a correlational research whose objective was to provide new processes to help structure the port community, to facilitate the development of its strategies and concrete the content of the same, in turn, contribute to making its implementation a reality so that it can be measured, assess the development and verify compliance with the implementation of the strategy which finally allows its monitoring, establishing conclusions and learning guidelines so that in a process of feedback and continuous improvement, makes the port more efficient and competitive. In research, strategic planning is a systematic and permanent process through which the organization determines its purpose, orientation and activities by drawing up a formal document that determines the long-term perspectives of the organization, establishing objectives and strategies that guide the application of these strategies through the formulation of action plans, activities and the fundamental elements that constitute the essence of the process of formulating the Strategic Plan. The starting point of the strategic pyramid is the Mission, which is the origin of the planning and theoretical support that must be developed in Planning objectives and strategies. A characteristic feature of the Balanced Scorecard (BSC) is that it constitutes a new assessment architecture based on the company's strategy. The Balanced Scorecard is a valuation system rather than a specific instrument as it is based on the company's organisational strategy. It requires the company to have its own rational system for the creation and flow of intellectual capital. In order to be effective as a decision-making tool, the company must know its own objectives, the context in which it operates and be dynamic enough to reflect its time dimensión.

2. Materials and Methods

The problem with this research is to know How does the Balanced Scorecard affect the strategic planning of the construction company SEI general contractors SAC 2014, so the following variables were determined:
Independent variable: X1= Balanced Scorecard.
For Villajuana (2010). Balanced Scorecard is: A management system that translates goals and strategies into a set of indicators to know, control and increase the level of effectiveness of an organization or a strategic unit (a business, a family of related products or services) (p. 28).
The following dimensions were considered for the independent variable: Financial Management, Customer Management, Internal Process Management, Learning Management and Growth.
Dependent Variable: Y1= Strategic planning.
For Sainz de Vicuña (2012). Strategic planning is: It is the process of defining (today) what we want to be in the future, supported by the corresponding reflection and strategic thinking[...] it constitutes the tool in which senior management collects the corporate strategic decisions that it has adopted today, that is, at the time it has made the strategic reflection with its management team, in reference to what it will do in the next three years (most common horizon of the strategic

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plan) to achieve a competitive company that allows it to satisfy the expectations of its different stakeholders (p. 30). The following dimensions were considered for the dependent variable: Situational diagnosis, Strategic Plan, Operational Plan, Control and Evaluation.
The quantitative approach makes use of the deductive hypothetical method that allows us to test the hypotheses through a structured design, which seeks to objectively measure the variable under study, demonstrating the truth or falsity of the hypotheses that cannot be demonstrated directly, due to their general character. Cegarra (2011), states that the deductive hypothetical method: "It is commonly used both in ordinary life and in scientific research. It is the logical way to find a solution to the problems we face and to check with the available data whether they agree with them" (p. 82).
The study design is non-experimental and transversal, whose facts occur in the real world, allow to measure the correlation that the intervening variables have, knowing their results in the execution of a test with only one study group. In this type of studies the causes and effects already happened in the tangible reality, the task of the investigator is to observe them and report them.

Of basic and ex post facto study type, it is given on facts that already happened, according to Escribano (2004): It means an investigation carried out, after the facts occurred, therefore, it is not possible to manipulate [...], it is a question of examining in a retrospective way the effects of an event occurred naturally on a subsequent result and its causal links between them" (p.350) and correlational level according to Diaz (2006) correlational studies: Their purpose is to measure the degree of relationship that exists between two or more concepts or variables (in a particular context), [...] pretend to see whether or not they are correlated in the same subject and then analyze the correlation. The main purpose and utility of correlational studies are to know how a concept or a variable can behave by knowing the behavior of other related variables, that is, to try to predict the approximate value that a group of individuals will have in one variable by knowing the behavior of the other related variables. (p.128).
According to Kerlinger and Lee (2002), the population is defined as: "The group of elements or cases in which objects or events are linked, which adjust to specific criteria and for which we intend to generalize the results of the investigation. This group is also known as the target population or universe" (p. 135).
Sample and convenience sampling: SEI construction company general contractors SAC 2014, According to Fernandez (2004) "convenience sampling is: "A procedure consisting of selecting the most suitable sample units for the study or allowing the participation of the sample to be totally voluntary".
The investigation used techniques and instruments that allowed to measure the phenomenon of study from the analysis of the facts related to the variables, was used the method of the observation, the diagnostic test, the interview and analysis of documents.
The instrument used in the analysis of the information of the company was the list of comparison, it allowed to evaluate the performance of the management and to obtain information of the observable actions that were applied to each department of the sample, considering that for the variables Balanced Scorecard and strategic planning a series of criteria have been structured to observe for each one of the indicators that are wanted to evaluate.
On Validity, it is specified that the data collection instruments were submitted to expert judgment to determine their validity and reliability. The experts participating in the evaluation of the measurement instruments corresponded to doctors of the specialty, for their knowledge and experience in company investigations, who independently judged the intentionality of the instrument items, based on the importance of content, clarity of wording and oriented bias.
The evaluation instrument took into account three indicators: clarity, coherence and pertinence, which has a value load of Yes or No corresponds.

Data processing tables were used to record, tabulate and process the data obtained in the instruments applied to the sample.

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The Kuder Richardson KR-20 technique was used to determine the degree of reliability of the data collection instrument, which allows to calculate the reliability with only one application of the instrument, it does not require the design of parallel tests and it is applicable only in instruments with dichotomous items that can be coded with 1 - 0, for each variable, determining that the measurement has resulted in a very high level of reliability to make an objective measurement to the present investigation.
According to the design of the investigation, descriptive statistics and inferential statistics were applied making use of frequency tables, graphs and statistics, frequency distribution, arithmetic mean, standard deviation, linear regression, determination of correlation coefficient, Anova and Kuder Richarsdson - KR 20 and normality to determine non-parametric tests.
The Kolmogorov-Smirnov test was used to determine whether the data approximate a normal distribution, and the test was determined to be nonparametric. Statistical methods were used for information processing, adequate data collected in the field, with the rigor that corresponds, finally it was necessary to use descriptive, analytical and interpretative methods to make known the results in tables and figures product of the statistical process that complemented the investigation.

3. Results

Balanced Scorecard application levels.
Table 1 and figure 1 show the results applied to the representatives of the reference company in relation to this variable: Balanced Scorecard. The 10.0% consider that this one presents a low level; the 74.0% consider that they present a moderate level and the 16.0% consider that it presents a high level.

Table 1. Balanced Scorecard Application Levels

	Frequency	Percentage
Low	5	10.0
moderated	37	74.0
High	8	16.0
Total	160	100.0

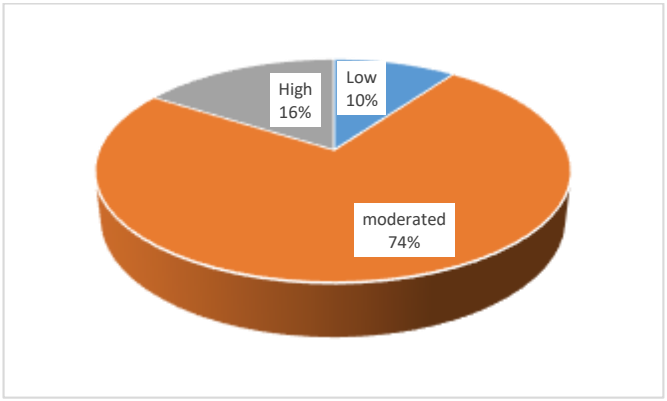

Figure 1. Percentage of Balanced Scorecard Application Levels

Levels of development of the Strategic Planning

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Table 2 and figure 2 show the results of the representatives of the reference company in relation to this variable: Levels of development of Strategic Planning. The 8.0% consider that this one presents a low level, the 68.0% presents a moderate level and the 24.0% consider that they present a high level.

Table 2. Levels of development of the Strategic Planning

	Frequency	Percentage
Low	4	8.0
moderated	34	68.0
High	12	24.0
Total	160	100.0

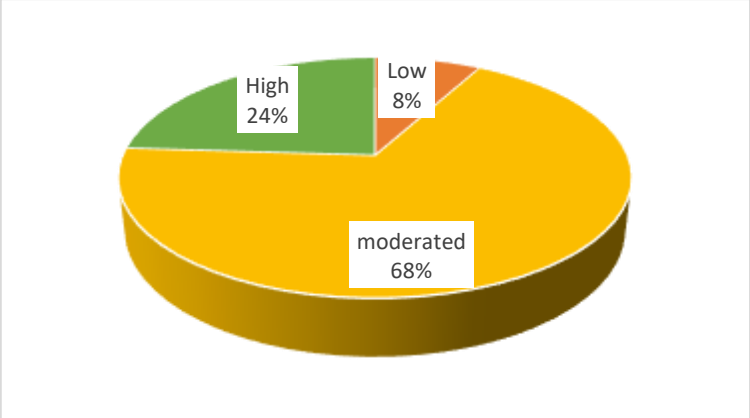

Figure 2. Levels of development of the Strategic Planning

Inferential analysis
Hypothesis test
The general hypothesis test was carried out using the following statistical hypotheses:
H0: There is no significant impact of the Balanced Scorecard on Strategic Planning in the construction company SEI general contractors SAC-2014.
Hi: There is a significant impact of the Balanced Scorecard in the Strategic Planning in the construction company SEI general contractors SAC-2014.
Decision rule:
≥ α → accept the null hypothesis Ho
< α → accepts the alternative hypothesis Ha

Table 3. Regression analysis general hypothesis

Model	R	Square R	fit square R	Standard estimation error	Estadísticas de cambios			
					Square change of R	Change in F	df1	df2	Sig. Change in F

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1	,640[a]	,410	,398	2,807	,410	33,378	1	48	,000

a. Predictor variables: (Constant), Balanced Scorecard
b. Dependent variable: Strategic Planning

Through the regression test it was determined that there is a moderate correlation between the variables as indicated by R = 0.640 and R2 = 0.410, it is estimated that the Balanced Scorecard influenced 41.0% of the strategic planning perceived by the representatives of the construction company SEI general contractors SAC-2014, as demonstrated by the predictive capacity of sig. of change = 0.000.

Table 4. Coefficients

Model		Non-standardized coefficients		Typified coefficients	t	Sig.
		B	typ. Error	Beta		
1	(Constant)	5,712	1,492		3,829	,000
	Balanced Scorecard	,635	,110	,640	5,777	,000

a. Dependent variable: Strategic Planning

The resulting model is: Balanced Scorecard = ,635 + 5,712 Strategic Planning. As can be seen, the determination coefficient (R squared) is 0.410 so the model is very suitable for explaining the relationship between the variables. That is to say, the Balanced Scorecard has a moderate predictive capacity to explain the criterion variable.

In figure 3 it can be seen that there is a linear functional dependence, the observations are on the regression line. r = R2 = 1, regression line: y = x

The figure obtained from interactive dispersion is as follows:

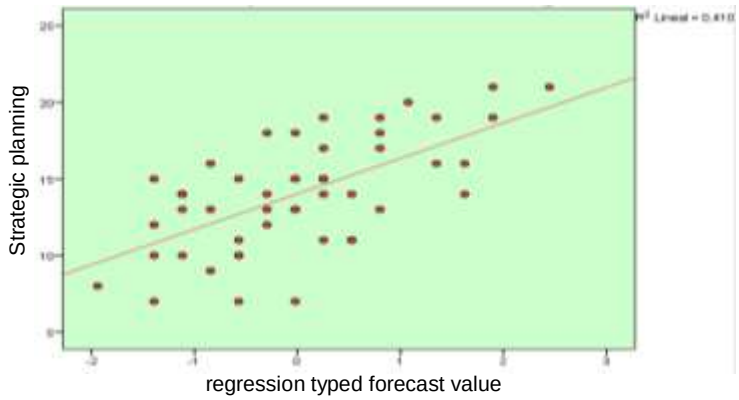

Figure 3. Dispersion of data.

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Table 5 show us whether or not there is a significant relationship between the variables. The F statistic allows us to contrast the null hypothesis that the population value of R is zero, which, in the simple regression model, is equivalent to contrasting the hypothesis that the slope of the regression line is zero. The critical level (Sig.) indicates that, if we assume that the population value of R is zero, it is unlikely (probability = 0.000) that R, in this sample, will take the value 33.378. This implies that R is less than zero and that, consequently, both variables are linearly related.

Table 5. Summary ANOVA

Model		Sum of squares	gl	Quadratic average	F	Sig.
1	Regression	262,905	1	262,905	33,378	,000[b]
	Residual	378,075	48	7,877		
	Total	640,980	49			

a. Dependent variable: Strategic Planning
b. Balanced Scorecard Predictor variables: (Constant), Balanced Scorecard

It is concluded that: There is a significant incidence of the Balanced Scorecard in the Strategic Planning of the construction company SEI general contractors SAC 2014.

4. Conclusions

- It is concluded that there is a significant impact of the Balanced Scorecard in the strategic planning of the construction company SEI general contractors SAC 2014, because there is a moderate correlation between the predictor variable and the dependent variable as indicated by R = 0.640 and R2 = 0.410, Balanced Scorecard influenced 41.0% on Strategic Planning perceived by the representatives of the construction company SEI general contractors SAC 2014, as demonstrated by the predictive capacity of change sig. = 0.000, where the resulting model is: Balanced Scorecard = 0.635 + 5.712 Strategic Planning and the coefficient of determination (R squared) is 0.410 so the model is very appropriate to explain the relationship between the variables. That is to say, Strategic Planning has a moderate predictive capacity to explain the criterion variable and there is a linear functional dependence, the observations are on the regression line. r = R2 = 1, regression line: y = x. The analysis of variance (Anova) informs us whether or not there is a significant relationship between the variables. The F statistic allows us to contrast the null hypothesis that the population value of R is zero, which, in the simple regression model, is equivalent to contrasting the hypothesis that the slope of the regression line is zero. The critical level (Sig.) indicates that, if we assume that the population value of R is zero, it is unlikely (probability = 0.000) that R, in this sample, will take the value 33.378. This implies that R is less than zero and that, consequently, both variables are linearly related.
- It is concluded that there is a significant incidence of the Balanced Scorecard in the Situational Diagnosis of the construction company SEI general contractors SAC 2014, where through the regression test it was determined that there is a moderate correlation between the variables as indicated by R = 0.484 and R2 = 0.234 which estimates that the Balanced Scorecard influenced 23.4% on the Situational Diagnosis in the construction company SEI general contractors SAC 2014, as demonstrated by the predictive capacity of sig. change = 0.000, in the resulting model Situational diagnosis = -1.286 + 0.163 Balanced Scorecard, the determination coefficient (R squared) is 0.234 so the model is

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suitable to explain the relationship between variables, ie the Balanced Scorecard variable has a predictive ability to explain the criterion variable, the analysis of variance (Anova) shows that there is a significant relationship between the variables, the critical level (Sig.) indicates that, if we assume that the population value of R is zero, it is unlikely (probability = 0.000) that R, in this sample, takes the value 14.650, which implies that R is less than zero and that, consequently, both variables are linearly related.

- It is concluded that there is significant impact of the Balanced Scorecard in the strategic plan of the Construction Company SEI General Contractors SAC 2014, through the regression test was determined that there is a moderate correlation between the variables as indicated by R = 0.464 and R2 = 0.215 where it estimates that the Balanced Scorecard influenced 21.5% on the strategic plan in the construction company, as demonstrated by the predictive capacity of sig. change = 0.001, in the resulting model where the Strategic Plan = 1.388 + ,177 Balanced Scorecard, the determination coefficient (R squared) is 0.215 so the model is very appropriate to explain the relationship between the variables, ie the Balanced Scorecard variable has a predictive ability to explain the criterion variable, the analysis of variance (Anova) informs us that there is a significant relationship between the variables, the critical level (Sig.) indicates that, if we assume that the population value of R is zero, it is unlikely (probability = 0.001) that R, in this sample, will take the value 13.185, which implies that R is less than zero and that, consequently, both variables are linearly related.
- It is concluded that there is a significant impact of the Balanced Scorecard in the development of the operational plan of the construction company, through the regression test it was determined that there is a moderate correlation between the variables as indicated by R = 0.435 and R2 = 0.189, it is estimated that the Balanced Scorecard influenced 18.9% on the operational plan in the construction company, as demonstrated by the predictive capacity of sig. change = 0.002, in the resulting model the Operating Plan 1.419 + ,145 Balanced Scorecard, the determination coefficient (R squared) is 0.189 so the model is suitable to explain the relationship between the variables, ie the Balanced Scorecard variable has a predictive ability to explain the criterion variable, likewise, the analysis of variance (Anova) informs us that there is a significant relationship between the variables, the critical level (Sig.) indicates that, if we assume that the population value of R is zero, it is unlikely (probability = 0.002) that R, in this sample, will take the value 11.179, which implies that R is less than zero and that, consequently, both variables are linearly related.
- It is concluded that there is a significant incidence of the Balanced Scorecard in the Control and evaluation of the construction company, through the regression test it was determined that there is a moderate correlation between the variables as indicated by R = 0.433 and R2 = 0.187 estimates that the Balance scorecard influenced 18.7% on the Control and evaluation in the construction company, as demonstrated by the predictive capacity of sig. change = 0.002, in the resulting model the Control and Evaluation = 1.619 + 0.150 Balanced Scorecard, the determination coefficient (R squared) is 0.187 so the model is suitable to explain the relationship between the Balanced Scorecard variable and the Control and Evaluation variable, ie, the Balanced Scorecard variable has a predictive ability to explain the criterion variable; the analysis of the variance (Anova) informs us that there is a significant relationship between the variables, the critical level (Sig.) indicates that, if we assume that the population value of R is zero, it is unlikely (probability = 0.002) that R, in this sample, will take the value 11.061, which implies that R is less than zero and that, consequently, both variables are linearly related.

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