Control of management practices and their impact on the competitiveness of companies in Mexico

Prácticas de control de gestión y su impacto en la competitividad de las empresas en México

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Abstract

Competitiveness has different meanings. All of them contain common elements that allow them to be classified into four dimensions: stakeholders, human factor, innovation, finance and market penetration. Goals: The main objective of this research is to analyze the relationship between the use of resources and capacities and financial performance in small and medium microenterprises (Mipymes) of the three sectors in Mexico. Metodology: Regarding the method of obtaining information, the data obtained from the application of 360 surveys were used, covering SME units from the sectors: industrial, commerce and services; in the main cities of the country. A theoretical model was designed to contrast the 3 specified hypotheses, and it was validated with a linear regression model. Contributios: Finally, it is concluded that this empirical study, framed in the contingent approach, has been able to show that human factors and innovation explain to a greater extent their influence on financial performance. And that technology, although it contributes to performance, conflicts when the human factor intervenes in the implementation of said technology. Thus, constituting a sustainable competitive advantage for business success.

Financial Performance, Technology, Innovation, Human Factor

Resumen

La competitividad tiene diferentes acepciones. Todas ellas contienen elementos comunes que permiten clasificarse en cuatro dimensiones: partes interesadas, factor humano, innovación, finanzas y penetración de mercado. Objetivos: El objetivo principal de esta investigación es analizar la relación entre el uso de los recursos y capacidades y el rendimiento financiero en empresas micro pequeñas y medianas (Mipymes) de los tres sectores en México. Metodología: En cuanto al método de obtención de la información, se utilizaron los datos obtenidos de la aplicación de 360 encuestas, abarcando unidades Pyme de los sectores: industrial, comercio y de servicios; en las principales ciudades del país. Se diseñó un modelo teórico para contrastar las 3 hipótesis especificadas, y se validó con un modelo de regresión lineal. Contribución: Finalmente, se concluye que este estudio empírico, enmarcado en el enfoque contingente, ha podido mostrar que los factores humanos y de innovación explican en mayor medida su influencia sobre el rendimiento financiero. Y que la tecnología, si bien contribuye al desempeño, entra en conflicto cuando el factor humano interviene en la implementación de dicha tecnología. Constituyendo así una ventaja competitiva sostenible para el éxito empresarial.

Innovación, Productividad, Industria del turismo, PyME´s

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Introduction

The main objective of this research is to analyze the relationship between the use of resources and capacities and financial performance in micro, small and medium-sized companies (Mipymes) of the three sectors in Mexico, taking as a research guide the theory of contingency and, specifically, the management control model proposed by Maiga, et. al. (2014) who suggest four categories of analysis that companies must attend to when developing a competitive advantage: technology, innovation, human resources and information management systems.

To approach the object of study, a quantitative investigation was developed, where a factorial analysis was carried out, from which findings were made that allowed contrasting the research hypotheses that relate each of the independent variables (degree of technology, degree of innovation and human factor) with the dependent variable (financial competitivennes).

Regarding the method of obtaining information, the data obtained from the application of 250 surveys were used, covering SME units from the sectors: industrial, commerce and services; in the occident of the country.

The article has been integrated into five parts. In the first one is given introduction to the object of study.

The second is made up of the conceptual framework in which information on the SME sector in Mexico is presented, as well as a review of the literature of empirical and theoretical studies that support the analysis.

The third section makes a brief description of the database used, the approach of the variables and hypotheses, as well as the applied methodology.

The fourth section presents and analyzes the results of the quantitative study. In the end, it is concluded according to the hypotheses raised, the main findings are discussed and future lines of research on this topic are proposed.

Literature review

In relation to the theoretical reference that was addressed in this article, this section exposes the theory of contingency, management control systems and the global and national panorama of MSMEs in Mexico.

The contingency theory

The theoretical foundation of this research is the contingency theory, which considers the study of companies and their financial performance as the basis (Simons, 1987; Otley, 1980; Ouchi, 1977). The contingency theory has been widely adopted by some researchers and used this theoretical framework for their work related to the analysis of such systems in organizations (De Antoni, 2020; Cruz, 2015).

To face the global challenges of MSMEs, they have to achieve and sustain competitive advantages. One of the most relevant competitive advantages is the use of organizational resources and capacities (Washington, 2013; Pérez-Cruz, 2016).

Therefore, and based on these arguments, the main starting question is: ¿is there a significant relationship between organizational resources and capacities and financial performance in MSMEs in Mexico?

Management control systems and their effect on financial performance

Tomás (2015), the description and definition of accounting systems for management (ASM) and the terms management accounting (MC), and organizational controls (CO), are sometimes used interchangeably reference to a series of practices such as the cost of products and budgets, while the ASM refer to the systematized use of the cg to achieve organizational goals.

Meanwhile, the ASM are broader and more complete systems that include other types of controls, such as personnel controls. On the other hand, CO are sometimes used to refer to comprehensive controls within specific activities and processes such as statistical quality controls and just intime, among others (Preciado & Cruz, 2012).

The ASM have been defined in different ways. Hansen et. al. (2021) refers to the ASM as the formalized processes and systems that use information to maintain or alter the patterns of activity in an organization. Said definition includes planning systems, reporting systems and monitoring processes, which are based on the use of information (Hansen & Mowen, 2014).

Cevallos (2021) argue that in broader terms, a ASM would be designed to support the organization to adapt to the environment in which it is established, and to provide the best results desired by its stakeholder group.

The scheme proposed by Amstrong and Tylor (2023) divides the field of control between strategic planning, control management and operational control, to define the ASM as the processes through which managers ensure that resources are obtained and used effectively and efficiently to meet organizational objectives.

However, this approach has led to a disconnect between the ASM and strategic planning and between the CM and operational control (AlGhazzawi & Lennox, 2009) and (Ala-Heikkilä, 2021).

Cisco et. al. (2016) affirms that the ASM have evolved over the years from a focus on providing quantifiable financial information, to the focus of supporting management in decision-making, covering a broader scope such as: external information on markets, clients, competition in the industry, non-financial information related to production processes and a broader range of support mechanisms for decision-making.

Vargas & Saavedra (2022) in one of his main contributions to contingency theory, mentions that this approach is based on the premise that there is no universally appropriate accounting system that can be applied in the same way to all organizations and in any circumstance.

Another point of view is that of Mejía e Higuita (2015), who explain this premise as the non-existence of a single and best way to manage and configure the organizational structure, since this will depend on the environment in which the company operates.

From the perspective of the ASM, the theory of contingency establishes that the financial performance of the company is influenced by various contingent variables such as strategy, size, structure and organizational environment, technology and individual tasks, as well as variables related to the management, instrumentation, structure and development of the information system (Buckingham & Goodall, 2015).

In this sense, Zizlavsky (2014) analyzed the alignment of different variables, such as accounting control techniques and the impact on business performance. Therefore, ASM should not be based solely on one form of control, such as performance measurement, but in a number of systems of control that work together.

DeNisi & Murphy (2017) in their contribution to the same theory, argue that the structure of an organization depends to a large extent of technology and the environment, also mentioning that the effectiveness of management processes is a contingent factor that affects the structure organizational.

Business competitiveness is related to three elements: the first is national competitiveness, which implies factors such as macroeconomic stability, openness and trade with other countries, or the complexity of regulation for the business sector; the second element refers to regional capacity; A third element that explains the competitiveness of companies has to do with the company itself and its internal dynamics (Perez, 2018).

Business competitiveness is derived from competitive advantage that an organization has through its production processes and efficiency that are reflected in the quality and price of the product or services, maintaining an advantage over its competitors (Meraz, Pérez-Cruz, & Olague, 2021).

Variables

The technology variable was measured as follows:

–   Technology as the set of scientific knowledge applied to improve products and/or services.

– The company's policy on the most advanced technologies in the market for the development of its products and/or services.

– Technology life cycle forecasts.

The innovation variable was based on what was proposed by Pérez (2020a; 2019) Cruz y Vázquez (2018) y Cruz (2017), and measured: the rate of new products or services in the company in comparison with its direct competitors.

The degree of differentiation between own innovations and those of its direct competitors; the success rate of new products in relation to that of its direct competitors and innovation as part of business culture (Cruz, 2014).

The human factor variable was based on what was proposed by Pérez-Cruz (2021) Licona-Michel y Pérez-Cruz (2018) Cruz (2014) and measured: emotional ties, lasting relationships, loyalty and effort.

To measure the dependent variable (competitiveness), financial results were considered based on three items: return on investment (ROI); profits and gross production sales.

Financial performance is a key variable within the contingent approach, since it will allow evaluating the degree of adjustment or coupling between the contingent variables and the organizational objectives.

Various studies have used competitiveness as a dependent variable, among others are: Demuner et. al. (2022), Pérez-Cruz (2020b), Matallana et. al. (2021), Esparza y Reyes (2019) González et. al. (2019) y Saavedra et. al. (2013).

Referring to the main objective of the work, which is to analyze the relationship between the use of scg and financial performance in MSMEs in Mexico, financial performance is considered as a dependent variable, and as independent variables: analysis (technology degree, degree of innovation) and with the dependent variable (financial competitiveness. The following figure illustrates the model addressed in this research:
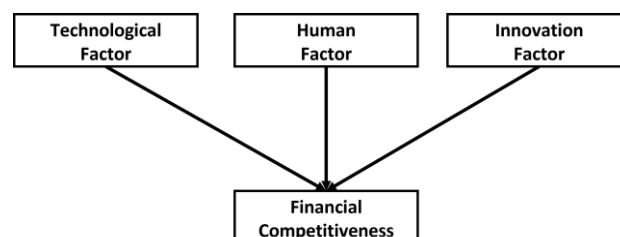

Figure 1 Research model
Source: Own Preparation

Hypothesis

As hypotheses are presented:

H_1: Competitiveness is positively related to the degree of technology of MSMEs.

H_2: Competitiveness is positively related to the human factor practices of MSMEs.

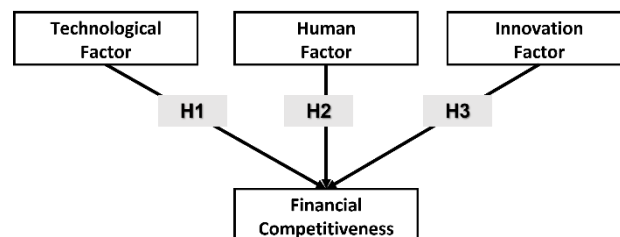H_3: Competitiveness is positively related to the innovation practices of MSMEs.

Figure 2 Hypothesis research
Source: Own Preparation

Methodology

From the review of the literature that allowed the conceptual model, We now turn to the characterization of the model and the specific methodology that will be taken into account to carry out this research.

A The data used is described below, the model developed for the measurement of the influence of the categories of analysis (degree of technology, degree of innovation and human factor) with the dependent variable (competitives).

The research was of a quantitative type, since from this An analysis of the influence of the independent variables was carried out, on the dependent variable.

Regarding the calculation of the correlations between the variables, the licensed software spss 18 was used, which allowed obtaining the factor analysis study.

The Mipymes object study belong to the industrial, trade and service sectors. This selection of these companies as a case study allowed us to grant more validity to this research with the application of the factor analysis model.

Results

To test the research hypotheses that relate each of the independent variables with the dependent variable, a principal component analysis was performed.

Principal component analysis represents a mathematical technique that does not require a statistical model to apply the probabilistic structure of the errors.

This analysis is applied when it is desired to know the relationship between elements of a population and it is suspected that said relationship is influenced in an unknown way by a set of variables or properties of the elements.

Factorial analysis

To carry out this analysis it is necessary to know the correlations of the data matrix.

One of the validity requirements of the matrix is the high correlation of the independent variables, for which the determinant of said matrix is taken into account, which must be different from zero. In this case, a determinant of 2.33 was obtained.

The second step was the Kaiser-Meyer-Olkin (KMO) sampling adequacy, which was 0.843, which brings it closer to 1 and the analysis can continue.

The third step consisted of testing whether the correlation matrix is an identity matrix, for which the Bartlett sphericity test was used. In this case, the result was a significance of 0.000, so the results are accepted as valid (Carmona, 2014).

Another applied analysis was the Measure of Sampling Adequacy (MSA), which was observed through the diagonal of the antiimage.

	CO	**TF**	**HF**	**IF**
CO	0.882	−0.309	−0.172	−0.096
TF	0.031	0.821	−0.265	0.028
HF	−0.17 −	0.265	0.903	0.019
IF	−0.100	0.028	0.019	0.901

Table 1 Diagonal of the antiimage
Source: Own elaboration based on STATA 14

This type of measurement makes it possible to individually compare all the variables. Here, 0 and 1 are taken as the minimum and maximum values respectively, the higher the MSA value being the better.

In the case of the antiimage correlation matrix, of the 4 variables, all presented values greater than 0.821. This provides another positive indicator of the validity of the matrix.

In this first phase of the factorial analysis, the analysis of relevance and validity of the data matrix is fulfilled, therefore, the matrix was integrated by technology, innovation and human factor ratios.

This coincides with the conceptual framework when affirming the incidence of the human factor for the development and innovation of companies. It also contradicts the theory of ICTs by observing that they have a lower incidence on the financial performance of MSMEs in Mexico.

Correlation of the variables

Finally, the Pearson χ^2 test was applied, which allows measuring the discrepancy between an observed distribution and a theoretical one, which is called goodness of fit. This measure indicates the independence of two variables from each other acording with Pérez-Cruz (2022).

The validity criterion is that the adjustment value is less than 0.05 in both distributions. The following values were obtained:

	CO	TF	HF	IF
CO	1.000			
TF	0.0904*	1.000		
HF	0.1599*	0.0167	1.000	
IF	0.1460*	0.0051	0.0957	1.000

Notes: CO=Competitives; TF Technological Factor; HF= Human Factor; IF=Innovation Factor.
Significance level: at 0.05*;

Table 2 Correlation of the variables
Source: Own elaboration based on STATA 14

Linear regression

Once it has been verified that the dependent variables are correlated. Therefore, simple linear regressions were carried out with the afore mentioned variables. The following table shows the summary of the results:

	Coef.	P valor
TF	0.0758	0.013*
IF	0.1141	0.004*
HF	0.0327	0.062**
Constant	0.7488	0.000***
R-cuadrada		0.065

Note: TF=technological factor; HF= human factor and IF= innovation factor.
Significance level: at 0.01***; at 0.05** and significant at 0.1*;

Table 3 Linear regressions
Source: Own elaboration based on STATA 14

In the previous table it can be seen that of the regression model, the one with the highest explanatory level was that of "innovation factor" with an *p value* signoficant at 0.01% (*pval*ue=0.00); followed by the variable "technological factor" with an *p value* significant at 0.05% (*pval*ue=0.013); and finally the variable of "humna factor" with a *p value* significant at 0.01% (*pval*ue=0.062).

Conclusions

The objective of this research was to analyze the relationship between the use of resources and capabilities and financial performance in the Mipymes of the three sectors in Mexico.

If you start from the idea that the main objective of this work was not to develop a model with high predictive power but to analyze the main factors that affect on financial performance to determine the probability of financial success.

From this mode, the approach of theme result complex to the to intervene several combined and simultaneous factors, such as: the performance of the staff, innovation and product development practices, as well as the implementation of new technologies; however, even when these ítems keep a business logic to leverage organizational success, the main urdle involves determining the specific value or the marginal contribution that each factor has on performance financial.

Thus, an adequate model of financial performance demands the joint integration of these and other factors to determine a profile on the characteristics of these explanatory variables.

In this sense, it is important clarify that each factor is integrated by characteristics different in each organization, in relation to that the observation units meet or not information required.

One of the contributions of this research is the approach to the important aspects of contingent theory and its relationship with estimative variables.

For it was important to integrate the framework conceptual what would expose the principles and rules that govern the accounting technique nowadays, for know and understand the practical problems what are presented to meet financial information.

Finally, it is concluded that this empirical study, framed in the contingent approach, has been able to show that human and innovation factors explain to a greater extent their influence on financial performance. And that technology, while contributing to performance, conflicts when the human factor intervenes in the implementation of said technolodge. Thus constituting a sustainable competitive advantage for success business.

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