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Financial Literacy of Entrepreneurs and Companies' Performance

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Abstract: Financial literacy is the ability of people to process economic information to make better financial decisions. Therefore, the financial literacy of entrepreneurs could affect the management of their companies and their results. The aim of this research is to determine if there is a significant relationship between companies' performance and financial knowledge, financial behavior, and financial attitude of micro, small, and medium-sized entrepreneurs. The incidence of the variables age, size, and sector of the companies, as well as the entrepreneur's age, gender, and educational level on companies' performance, is also analyzed. Data from 206 entrepreneurs from Veracruz, Mexico, were analyzed using a logistic regression model. The results show that the financial behavior of the entrepreneurs has a positive and highly significant effect on companies' performance, although the entrepreneur's knowledge and attitude don't have a significant relationship with companies' performance. The results also show that companies in the industrial sector led by men are less likely to obtain high performance compared to those in the commerce sector. No incidence was found of the variables age, size of the company, and entrepreneur's educational level on the performance of their companies.

Keywords: financial literacy; entrepreneurs; performance; MSMEs; Mexico

JEL Classification: G40; G53



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1. Introduction

Financial literacy has been defined as the ability individuals must acquire to process economic information correctly, make well-informed decisions, which allow them to understand terms such as wealth accumulation, debt, and pensions (Lusardi and Mitchell 2014), make quality financial decisions and thereby improve their financial well-being (Garg and Singh 2018; Santini et al. 2019). The importance of financial literacy has increased in recent years, mainly due to changes in the economic-political environment that led to the deregulation of financial markets and allowed the development and growth of new and more sophisticated financial products (Lusardi 2019).

Financial literacy is of great importance, both in domestic and work contexts, especially among administrators of micro, small, and medium-sized enterprises (MSMEs), considering that these represent more than 90% of all formal companies in the world and close to 99% in Latin American countries, generating more than 60% of formal employment in those economies (Economic Commission for Latin America and the Caribbean, ECLAC 2021). However, despite being the main piece of productive activity around the world, MSMEs are characterized by having relatively short life cycles, low productivity compared to large companies, and serious financing problems (International Council for Small Business, ICSB 2018; National Institute of Statistics and Geography, INEGI 2018).

In this area, entrepreneurs' financial literacy plays a key role in small businesses' success. MSMEs owners and managers with high financial literacy tend to make relatively fewer errors in financial decision-making compared to those who have poor financial knowledge, behaviors, attitudes, and skills (Lusardi and Tufano 2015; Eniola and Entebang

2016; Damayanti et al. 2018). In this way, financial literacy helps entrepreneurs cope with the course of economic cycles and make their companies financially sound (OECD 2017). Consequently, higher financial literacy levels among MSME entrepreneurs would have a positive impact on their companies' performance because they would be better able to manage budgets, save, compare financial products, improve debt management, and make strategic investment decisions (Lusardi and Mitchell 2011; Bayrakdaroglu and Şan 2014; Eniola and Entebang 2016; Damayanti et al. 2018).

In Mexico, it has been observed that the financial literacy level is generally low. According to García-Mata (2021), financial literacy per component was estimated at 40.0% for financial behavior, 60.9% for financial attitude, and 34.9% for financial knowledge. The latter is comparable to the level observed in emerging countries but low compared to developed nations. Besides this, micro, small, and medium-sized businesses in Mexico appear to be short of capital, often lacking the experience that could guide them through difficult circumstances, and are burdened by a bureaucratic network that does not efficiently distribute resources among micro-entrepreneurs (Silva 2017). Micro, small, and medium-sized companies are the driving force of the country, contributing 42% to the national gross domestic product and generating 78% of jobs in Mexico (INEGI 2019). Despite this, MSMEs are vulnerable and face problems such as lack of access to credit or problems training their staff.

Based on the previous approach, this research aims to identify whether entrepreneurs' financial literacy in Mexico affects their companies' performance. The main contributions of the work are as follows: first, knowledge, behavior, and financial attitudes indices are calculated for micro, small, and medium-sized entrepreneurs in the state of Veracruz in Mexico. Second, financial literacy is addressed in a business context and not from the personal finances approach in domestic contexts, as has traditionally been studied in the literature (Molina-García et al. 2022). Third, evidence is presented on the relationship among knowledge, behavior, and financial attitudes of micro, small, and medium-sized entrepreneurs with their business performance, showing which of the three components is the most important. Finally, the variables age, size, and sector of the company, as well as age, gender, and educational level of the entrepreneurs, are analyzed to determine their impact on the performance of the company. Small entrepreneurs are less explored in financial literacy studies than other populations (like students or workers). Therefore, this research addresses a gap in the literature on financial literacy, the study of entrepreneurs in a Mexican region less developed than the rest of the country.

The rest of the work is structured as follows: The Section 2 presents the literature review on financial literacy and its relationship with business performance. The Section 3 describes the methodology used in the research. The main results are presented in the Section 4, while the conclusions are presented in the Section 5.

2. Literature Review

2.1. Financial Literacy

The Organisation for Economic Co-operation and Development (OECD) defines financial literacy as not only the knowledge and understanding of financial concepts and risks but also the skills, motivation, and confidence to apply such knowledge and understanding in order to make effective decisions across a range of financial contexts, to improve the financial well-being of individuals and society, and to enable participation in economic life (Lusardi 2019). This is probably the most complete definition of a topic that has been defined and measured in different ways (Rieger 2020). Among several measurement proposals, Lusardi and Mitchell's (2011) approach has advantages due to its simplicity, relevance, brevity, and capacity to differentiate. Therefore, it was selected to evaluate financial knowledge in this research. The questions considered are based on fundamental concepts that underlie most financial decisions and have been addressed in many national surveys around the world (Lusardi 2019; Klapper et al. 2015). Lusardi and Mitchell (2011) state that financial knowledge is measured by the correct answers to five questions related

to the knowledge of inflation, interest rates, time value of money, risk diversification, and risk-return relationship.

People's financial behavior is linked to their financial management practices related to basic money management skills, such as tracking expenses and paying bills on time (Hilgert et al. 2003). The OECD (2018a) suggests that micro, small, and medium-sized entrepreneurs' basic financial behavior is associated with the maintenance of commercial transactions written records, income and expenses recording, cash flow projections and budgets preparation, and evaluation of business profits or losses. Considering this entrepreneur's financial behavior was evaluated in this research with the questions of the National Survey on Productivity and Competitiveness of Micro, Small, and Medium Enterprises (INEGI 2018). It is related to the practices followed by the owners of MSMEs regarding the business's daily operations, written records, cost calculation and estimation, expenses and income, and financial statements.

Financial attitude indicates the position that people have regarding the use of money in the present with respect to the future, and it has been measured by the OECD (2018b) approach with three questions to evaluate if people are more satisfied with spending money than keep it for a long time and if they care about future.

2.2. Financial Literacy and Company Performance

Dahmen and Rodríguez (2014) point out that business financial literacy is the ability to understand and use company financial statements to evaluate and manage a business. They refer to the ability to understand and use the company's financial statements to calculate fundamental financial ratios that allow the business to be adequately evaluated and managed. In this way, the entrepreneur's financial literacy is an important determinant of a company's performance, and various research around the world has demonstrated the relationship between these variables (Wati et al. 2021; Augustin et al. 2020; Agyapong and Attram 2019; Engström and McKelvie 2017).

The company's performance can be understood as its ability to generate adequate results and encompasses various concepts, such as growth, survival, success, and competitiveness related to sales indicators, profits, assets, and equity return, etc. (Eniola and Entebang 2016; Eresia-Eke and Raath 2013; Akhtar and Liu 2018; Cheng and Shiu 2007; Watson 2007). To measure the company's performance, Eresia-Eke and Raath (2013) proposal is taken as a reference. In their items, they considered different indicators of financial, strategic, and structural growth of companies.

2.3. Empirical Studies

In Malaysia, Yakob et al. (2021) identified that micro-entrepreneurs financial literacy has a positive and significant effect on their companies' performances. Financially literate managers understand financial concepts related to business, including debt, savings, insurance, and investments, that ensure the good performance of their businesses. Tumba et al. (2022) agree with this finding, which, based on their results, concluded that financial illiteracy is the cause of poor performance in women-managed micro-enterprises in Nigeria. Usama and Yusoff (2019) analyzed the impact that Nigerian entrepreneurs' financial literacy has on their companies and concluded that the level of financial literacy explains 65.5% of the variation in the performance of companies and that its incidence is statistically significant.

In research carried out in Ghana, Agyei (2017) identified that micro-entrepreneurs financial literacy levels have greatly improved. However, they have problems understanding the diversification concept. She also identified that there is a relationship between the entrepreneur's financial literacy and the growth of small and medium-sized businesses and how this relationship depends on the cultural context. Also, in Ghana, Tuffour et al. (2022) identified a positive and significant effect of micro-entrepreneurs financial literacy on financial and non-financial companies' performance.

In Indonesia, [Sohilauw et al. \(2021\)](#) analyzed data from 279 companies and concluded that financial literacy affects the financial decision-making process and, therefore, the company's financial capital and its performance. According to the finding that Indonesian micro-entrepreneur's financial literacy has a positive and significant effect on their company's performance, [Buchdadi et al. \(2020\)](#) identified that this relationship is mediated by access to finance and attitude towards financial risk.

[Engström and McKelvie \(2017\)](#) identified that among Ecuadorian micro-entrepreneurs, who are part of the informal economy, their level of financial literacy is an important predictor of their company's performance, but it does not determine its growth. Their results show that those who possess higher levels of financial literacy can soundly evaluate an opportunity and, therefore, make better investment decisions. According to [Atkinson and Messy \(2012\)](#) financial literacy is made up of knowledge, behavior, and attitude towards finance. Considering this, the hypothesis of research that entrepreneurs' financial literacy is related to companies' performance is as follows:

H1. *Entrepreneurs' financial knowledge has a positive and statistically significant relationship with companies' performance.*

H2. *Entrepreneurs' financial behavior has a positive and statistically significant relationship with companies' performance.*

H3. *Entrepreneurs' financial attitude has a positive and statistically significant relationship with companies' performance.*

Companies' performance can also be influenced by other variables related to the owner, such as the owner's educational level ([Karadag 2017](#); [Xuan et al. 2020](#); [Purwidiati et al. 2022](#)). Based on this, the fourth hypothesis of research states as follows:

H4. *The performance of companies has a statistically significant relationship with the age, the educational level and the gender of the entrepreneurs.*

The performance of the companies is also related to their size and age ([Garcia-Martinez et al. 2023](#)), as well as their sector ([Mallinguu et al. 2020](#)). Based on this, the fifth hypothesis of research states as follows:

H5. *The performance of companies has a statistically significant relationship with their sector, age, and size.*

3. Methodology

In the state of Veracruz, Mexico, there were a total of 278,230 companies distributed in its 212 municipalities. More than 90% of them are micro, small, and medium-sized ([SEFIPLAN 2019](#)). Due to logistics and resource reasons, only the municipalities of Veracruz and Coatzacoalcos were considered in the study. The survey was carried out in July, August, and September 2019 with the support of municipal governments during four business meetings convened by local chambers of commerce, and 248 completed questionnaires were obtained. Forty-two of them were eliminated for being incomplete or having errors. Therefore, the final sample was made up of 206.

The questionnaire contains three sections: demographic data of the micro-entrepreneurs and their companies, data on financial literacy (in its three components: knowledge, behavior, and attitudes), and data on the companies' situation (performance indicators such as cash flows, total sales, debt, profits, and financial difficulties, which were intended to know their evolution in the last five years).

With the information obtained, a database was created. By using this information, indices of knowledge, behavior, and financial attitudes of the MSMEs owners were created, as well as a company performance index, which are described below:

Financial Knowledge Index (FIKI). Five questions were set out, taking as reference the work of Lusardi (2011) related to the knowledge of inflation, interest rates, time value of money, risk diversification, and risk-return relationship. Subsequently, following the OECD (2018a, 2018b) methodology and appropriated by the CNBV (2022), a value of 1 was assigned to the correct answers and 0 to the incorrect ones. Therefore, the financial knowledge score was calculated as the number of correct answers. Its range, therefore, oscillated between 0 and 5.

Financial behavior index (FIBEI). Nine questions were set out, taking as reference the National Survey on Productivity and Competitiveness of Micro, Small, and Medium Enterprises (INEGI 2018). A value of 1 was assigned for affirmative responses (those owners who declared having written records, calculated costs, expenses, and income, and prepared financial statements of their businesses), and a value of 0 for those who declared not to do so. The financial behavior score ranged from 0 to 9.

Financial attitudes index (FAI). Three questions were set out, following the OECD (2018b) approach and adapted by the CNBV (2022), which provided information on the preferences of MSME owners regarding concerns for the future. For attitudes, a Likert scale was used with five possible responses ranging from “completely disagree” to “completely agree.” Values from 5 to 1 were assigned for each response, where the maximum value of 5 corresponded to the most prudent financial attitude and the minimum value of 1 to the least prudent financial attitude. In this way, the financial attitudes score took values between 3 and 15.

For the company’s performance index, five questions were adapted from the work of Eresia-Eke and Raath (2013) on the company’s situation in the last five years (cash flows, total sales, debt, profits, and financial difficulties) were considered. Each question was assigned the value of 2 points if the corresponding indicator had improved in the last five years, 1 point if it had remained the same, and 0 points if it had become worse. As a result, the company’s performance score ranged from 0 to 10.

All indices were normalized to 100 for a more intuitive interpretation, fluctuating between zero and one hundred. The closer to zero, the worse the level of the respective financial literacy component, and the closer to one hundred, the better the level of the respective financial literacy component.

The relationship of financial knowledge, behavior, and attitudes indices of MSMEs owners with the companies’ performance index was evaluated. The hypothesis suggests the existence of a positive relationship between financial knowledge, behavior, and attitudes with company performance. To test this hypothesis, first, the point-biserial correlation coefficient between the indices of financial knowledge, behavior, and attitudes with the performance index was evaluated, and subsequently, a logit regression model was estimated.

For the estimation of the logit model, a value of 1 was assigned to companies that had a high-performance level and a value of 0 to those that had a low-performance level. The mean of the performance index was used to separate the two groups: companies that had a performance level below the average were classified as low performers, and companies that had a performance level above the average were classified as high performers, as Chiadamrong and Wattanawarangkoon (2023).

Then, the proposed regression model is as follows (Greene 2003):

$$Prob(Y = 1/X) = \frac{e^{X\beta}}{1 + e^{X\beta}}$$

where $Prob(Y = 1)$: probability that the company has a high level of performance. X : independent variables. β : the vector of coefficients estimated by the maximum likelihood method. The Gretl econometric software was used, version 2023 available in: <https://gretl.sourceforge.net/> (accessed on 14 July 2023).

The independent variables included in the model are: financial knowledge, financial behavior, and financial attitude, as well as the gender, age, and education of the MSMEs' owner; the number of employees, sector, and age of the companies.

To estimate the model, dichotomous variables are designed for the independent variables: gender (men and women); age (20–29, 30–39, 40–49, 50–59, 60 or more years old); educational level (up to high school, bachelor and postgraduate); number of employees (up to 10, 11–50, 51–100 employees); company age (less than a year, 1–5, 6–10, more than ten years) and sector (commercial, industrial, and service). The reference category is the first one mentioned for each variable. A dichotomous variable is designed for the gender variable (1: man, 0: woman) and a dichotomous variable for each sector (commercial, industrial, and service). The value of 1 is assigned to the specific sector, and zero otherwise. The reference category is the commercial sector. Based on theoretical and empirical evidence, it is expected that higher levels of financial knowledge, behavior, and attitudes cause high levels of company performance.

4. Results

Tables 1 and 2 show the micro, small, and medium-sized enterprises' owners' demographic information, as well as their businesses. Table 1 shows that there is a large gender difference of 26 percentage points, with a greater number of male owners than female ones. Likewise, the data also indicates that MSMEs owners are relatively young, 71% of them aged 49 years old or younger, and more than half of them (62%) have a bachelor's degree, which challenges the widespread idea that micro and small businesses are founded and managed, in their majority, by people with low educational levels.

Table 1. Sociodemographic characteristics of MSME owners.

	Categories	Frequency (n = 206)	Percentage (%)
Gender	Female	77	37
	Male	129	63
Age	20–29 years old	71	34.5
	30–39 years old	59	28.7
	40–49 years old	18	8.7
	50–59 years old	35	16.9
	60 years old or more	23	11.2
Education	Up to High School	23	11.2
	Bachelor	128	62.1
	Postgraduate	55	26.7

Source: own.

Table 2 shows that most of the companies surveyed correspond to the service sector (58%), followed by the commercial sector (28%) and the industrial sector (14%). Most of them are relatively young companies (58% are five or less years old), and 66% have ten or fewer employees.

Table 3 shows the results of the five questions on financial knowledge, taking the work of Lusardi (2011) as a reference. It can be seen that regarding inflation, interest rate, and risk diversification, the percentage of correct answers from MSMEs owners was relatively high. However, in the area of understanding the time value of money and diversification and risk, the percentage of correct answers decreases significantly. This last piece of information is striking, as it emphasizes the lack of knowledge of micro, small, and medium-sized entrepreneurs about the relationship between the price of debt securities (bonds) and the interest rate.

Table 2. MSME data.

	Categories	Frequency (n = 206)	Percentage (%)
Company age	<1 year	59	29
	1–5 years	59	29
	6–10 years	32	15
	>10 years	56	27
Sector	Commercial	57	28
	Industrial	29	14
	Service	120	58
Employees number	≤10	136	66
	11–50	39	19
	51–100	31	15

Source: own.

Table 3. Financial knowledge questions.

	Percentage (%) (n = 206)	
	Correct	Incorrect
Interest rate	73	27
Inflation	71	29
Risk diversification	30	70
Time value of money	51	49
Risk and return	69	31

Source: own.

Table 4 shows the results of the nine questions on businessmen's financial behavior. It can be noted that, in general terms, most have written records of their business operations. However, they present relatively weak financial behaviors in the area of financial planning. Specifically, in the preparation of monthly cash flow statements (only 44% do them), estimation of the approximate costs of the business (49% estimate them), preparation of monthly financial statements (51% prepare them), and records to demonstrate to the bank that the business has enough money left each month after paying a loan (only 52% could demonstrate this).

Table 4. Financial behavior questions.

	Percentage (%) (n = 206)	
	Yes	No
Records of the business operation	82	18
Written records about cash held	77	23
Written records about business expenses (rent, electricity, equipment, etc.)	67	33
Estimation of the approximate costs of the business in the current year	49	51
Knowledge of business profits and losses in the past year	62	38
Knowledge of business income and expenses per year	64	36
Records to demonstrate to the bank that the business has enough money left each month after paying a loan	52	48
Preparation of monthly cash flow statements	44	56
Preparation of monthly financial statements	51	49

Source: own.

Table 5 shows the results of the three questions on financial attitudes. Consistency is observed in the three responses, indicating that, regarding concern for the financial future, the majority of MSMEs owners express a prudent and favorable attitude.

Table 5. Financial attitudes questions.

	Percentage (%) (n = 206)				
	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
It is more satisfying to spend money than to keep it for a long time	19	42	15	15	9
Money is to be spent	17	42	17	17	6
It is better to live in the present and let the future take care of itself	36	47	10	4	3

Source: own.

Table 6 shows the results of the adapted questions based on Eresia-Eke and Raath (2013) on the evolution of five business performance indicators in the last five years. In general, the owners of the MSMEs have perceived that in the last five years, their cash flows and sales have increased. Most SME owners have perceived that their cash flows, sales, and financial difficulties have increased (37%, 38%, and 43%, respectively). However, their debts and profits have remained the same (42% and 36%).

Table 6. Evolution of company performance indicators in the last five years.

	Percentage (%) (n = 206)		
	Increase	Remained the Same	Decrease
Cash flows	37	33	30
Total sales	38	30	32
Debts	35	42	23
Profits	35	36	29
Financial difficulties	43	42	15
Mean	37.6	36.6	25.8
Variance	10.8	28.8	47.7

Source: own.

Financial Knowledge, Behavior, Attitudes, and Companies' Performance

The working hypothesis was also evaluated using a logit model. To do this, the companies were classified into two groups based on their performance level (the company's performance index average was used to form both groups); 58% of the companies were above average and 42% below average. The results of the logit model are shown in Table 7. Five models were estimated, in which the different independent variables are incorporated. The five models' results show that the financial behavior of the entrepreneurs has a positive and significant effect on companies' performance. This result supports the second hypothesis that entrepreneurs' financial behavior is related to companies' performance.

It can be seen that the model 1 joint significance is high, and the results indicate that the probability that companies maintain a high level of performance is positively related to the financial knowledge level and behavior, although only the relationship between behavior and performance is statistically significant ($\beta = 1.794$, p -value < 0.01) with a marginal effect of 0.436. Therefore, the first and third hypotheses are rejected, and the second hypothesis is accepted. According to model 2, there is no statistical significance related to gender or educational level on the probability that MSMEs have a high level of performance. However, the signs of these demographic factors suggest that men could achieve a higher level of performance relative to women and that owners with postgraduate studies are associated with a greater probability of their companies achieving a high level of performance. The negative and statistically significant sign of age

variable, categories: 50–59 and 60 years old or more ($\beta = -1.174$, p -value < 0.05 ; $\beta = -2.366$, p -value < 0.01), respectively, seems to imply that older entrepreneurs have a lower probability of achieving high performance from their businesses than younger entrepreneurs ($\beta = -0.469$, p -value < 0.01). The marginal effect for the 50–59 years category is -0.285 , and for the 60 years or older category, it is -0.503 . The age results partially support the acceptance of the fourth hypothesis about the relationship between business performance and the sociodemographic characteristics of entrepreneurs.

Table 7. Logit estimation. Marginal effects. Dependent variable: 1 High performance, 0: Low performance).

Independent Variables	Model 1	Model 2	Model 3	Model 4 (Male)	Model 5 (Women)
Constant	−0.580	−0.965	−1.464	2.401	−4.230
Financial knowledge	0.270 (0.065)	0.174 (0.042)	0.517 (0.124)	−0.859 (−0.192)	0.288 (0.071)
Financial behavior	1.794 *** (0.436)	2.416 *** (0.583)	2.725 *** (0.653)	3.481 *** (0.781)	1.972 (0.488)
Financial attitude	−0.456 (−0.111)	−0.046 (−0.011)	−0.062 (−0.014)	−4.201 ** (−0.943)	6.418 * (1.590)
Gender: male		0.347 (0.084)	0.408 (0.098)		
Age: 20–29 years old (RC)					
30–39 years old		−0.477 (−0.116)	−0.440 (−0.106)	−0.339 (−0.077)	0.112 (0.027)
40–49 years old		0.150 (0.035)	0.631 (0.140)	3.920 ** (0.390)	−1.086 (−0.261)
50–59 years old		−1.174 ** (−0.285)	−1.065 * (−0.259)	0.238 (0.052)	−2.883 * (−0.552)
60 years old or more		−2.366 *** (−0.503)	−2.131 *** (−0.471)	−1.114 (−0.267)	
Educational level: Up To High School (RC)					
Bachelor		0.143 (0.034)	−0.014 (−0.003)	1.210 (0.273)	−2.076 (−0.447)
Postgraduate		0.312 (0.074)	0.433 (0.101)	0.367 (0.080)	0.703 (0.168)
Company age: <1 year (RC)					
1–5 years			−0.830 (−0.201)	−1.016 (−0.238)	−1.285 (−0.310)
6–10 years			0.350 (0.081)	0.015 (0.003)	0.668 (0.158)
>10 years			−0.577 (−0.140)	−1.718 * (−0.394)	−0.808 (−0.199)
Employees number: <10 (RC)					
11–50			0.799 (0.177)	3.224 *** (0.464)	
51–100			0.089 (0.021)	0.553 (0.116)	

Table 7. Cont.

Independent Variables	Model 1	Model 2	Model 3	Model 4 (Male)	Model 5 (Women)
Commercial sector (RC)					
Industrial sector			−0.519 (−0.127)	−2.240 ** (−0.507)	0.013 (0.003)
Service sector			0.579 (0.139)	−1.107 (−0.237)	1.192 (0.289)
Observations number:	206	206	206	129	77
Mean of the dependent variable	0.577	0.577	0.577	0.589	0.558
Number of cases ‘correctly predicted’	140 (68.0%)	145 (70.4%)	152 (73.8%)	97 (75.2%)	62 (80.5%)
f(beta'x)	0.243	0.241	0.240	0.225	0.248
McFadden R-square	0.064	0.148	0.193	0.355	0.363
Likelihood ratio test: Chi-square (g.l)	Chi-square (3) = 18.05 [0.000]	Chi-square (10) = 41.64 [0.000]	Chi-square (17) = 54.19 [0.000]	Chi-square (16) = 62.15 [0.000]	Chi-square (13) = 38.39 [0.000]

RC: Reference category. Note: *, **, ***: Statistical significance at 10%, 5%, 1% respectively. For each variable, its coefficient and the marginal effect (indicated in parentheses) are presented. For women entrepreneurs, the 60 years or older category has been eliminated, as well as the variable number of employees due to a lack of observations or multicollinearity problems. Source: own.

Regarding companies-related variables, results of model 3 show that company's age has a negative effect on its performance (categories: 1 to 5 years and more than 10 years) and a positive effect for the category 6 to 10 years, but they are not significant. The results also show that there is no statistical significance between the number of employees and the probability of a company's high performance. Despite this, the positive sign suggests that a greater number of employees is associated with the probability of high performance. No statistical significance was found depending on the sector to which the company belongs, although the sign suggests that those companies that belong to the service sector are more likely to achieve high performance than those that belong to the commercial sector. These results allow us to reject Hypothesis 5.

Models 4 and 5 show the estimation of the companies' performance for male and female entrepreneurs, respectively. The financial behavior of entrepreneurs has a positive and significant relationship with the performance of companies for male entrepreneurs ($\beta = 3.481$, p -value < 0.01) with marginal effect of 0.781 and a negative and significant effect of financial attitude on performance ($\beta = -4.201$, p -value < 0.05) with marginal effect of -0.943 . Considering just the group of men, the correlation coefficient between performance and financial knowledge is negative (-0.066 ; two-tailed p -value 0.456). It could be due to the bias in the relationship between both variables caused by the 5.43% of entrepreneurs who obtained a score of 100 points on the financial knowledge indicator. In the model of women entrepreneurs, financial attitude has a positive and significant effect on performance $\beta = 6.418$, p -value < 0.1) with a marginal effect of 1.590. Age has a negative and significant effect on the performance of companies led by women ($\beta = -2.883$, p -value < 0.1) with a marginal effect of -0.552 . It means that companies led by older women are less likely to achieve high performance than those led by younger women. In the case of male entrepreneurs, age (40–49 years) has a positive and significant effect on performance ($\beta = 3.920$, p -value < 0.05) with a marginal effect of 0.390.

In the model of male entrepreneurs, the age of the company (greater than 10 years) has a negative and significant effect on performance ($\beta = -1.718$, p -value < 0.1) with a marginal effect of -0.394 . The number of employees (11–50 employees) has a positive and significant effect on performance ($\beta = 3.224$, p -value < 0.01) with a marginal effect of 0.464. Companies

in the industrial sector led by men are less likely to obtain high performance compared to those in the commerce sector ($\beta = -2.240$, p -value < 0.05) with a marginal effect of 0.507. In companies led by women, business performance is not significantly related to the age of the company, the number of employees, or the sector.

5. Discussion

The results show that, unlike attitude or knowledge, it is the entrepreneurs' financial behavior that significantly affects the company's performance. This result coincides with [Nyamboga et al. \(2014\)](#), who identify that a company's performance is related to entrepreneurs' skills in accounting, credit management, and budgeting. This suggests that behaviors such as recording business operations, preparing cash flows, and monthly financial statements are more significant to the results of their businesses than the knowledge level they have regarding simple and compound interest, inflation, or diversification and risk.

Unlike the results obtained by [Karadag \(2017\)](#) and [Xuan et al. \(2020\)](#), no statistical significance was found in the relationship between the entrepreneur's educational level and the probability that companies have high performance levels. In this sense, gender did not turn out to be a significant variable either. However, entrepreneurs' age resulted a significant variable related with companies' performance and this result contrasts with the findings of [Purwidiyanti et al. \(2022\)](#).

The fact that a company could achieve a high performance when a young person manages it, particularly if it is a woman, is perhaps because older people could be less innovative. However, this remains for a future analysis to find out. The non-association between the entrepreneur's gender and educational level with the company's performance could be explained by a possible mediation of the financial behavior variable. On the other hand, the negative relationship that exists between financial attitude and business performance could be explained by the type of question used to measure attitude, focusing on personal financial decisions rather than business financial decisions like in [Anghel et al. \(2021\)](#) and [Fernández-López et al. \(2023\)](#) who used [OECD \(2020\)](#) questions on the attitude of the businessman, published after the survey application of this research.

The results obtained for the companies' characteristics indicate that the company's age has a negative influence on performance in the categories of 1–5 years and more than 10 years, while it has a positive effect for the category of 6–10 years. However, this relationship does not reach statistical significance. These results contrast with the empirical evidence presented in other studies, such as [Mallingu et al. \(2020\)](#) and [Purwidiyanti et al. \(2022\)](#), who find a positive and significant association between a company's age and performance. However, there is an apparent coincidence with national reports about the average life expectancy of MSMEs in Mexico ([INEGI 2019](#)), which suggests that the best-performing segment for small companies corresponds to those with an average age of 8.4 years.

The results also indicate that no statistical significance is observed in the relationship between the number of employees and the probability of the company's high performance. Despite this, the positive sign suggests that there is an association between a larger number of employees and a higher probability of outstanding performance. This finding could be related to greater and better access to Mexican financing sources to the extent that the company is larger and coincides with the evidence presented by [García-Martínez et al. \(2023\)](#) that indicates a positive relationship between the company's size and its performance.

Likewise, a positive impact is observed on the company's performance when this one belongs to the service sector, and a negative impact is if the company is linked to the industrial sector, although none of these associations reach statistical significance. This result contrasts with other works, such as [Mallingu et al. \(2020\)](#), that find a positive relationship between performance and the industrial sector but a negative relationship with the commercial and services sector. In the case of men, those who manage companies in the industrial sector, only 45% reach performance above average. It could be due to their educational or financial literacy level.

6. Conclusions

The aim of this research is to determine if there is a significant relationship between companies' performance and financial knowledge, financial behavior, and financial attitude of micro, small, and medium-sized Mexican entrepreneurs. The incidence of the variables age, size, and sector of the companies, as well as the entrepreneur's age, gender, and educational level, on companies' performance, is also analyzed.

With data from 206 entrepreneurs, indices of company performance, as well as knowledge, behavior, and financial attitudes of the MSMEs owners, were created. The analysis was carried out Using a logistic regression model. The main findings reveal that the financial behavior of the entrepreneurs has a positive and highly significant effect on companies' performance, although the entrepreneur's knowledge and attitude don't have a significant relationship with companies' performance.

Despite not finding significance in the relationship between the characteristics of the company and its performance, significant relationships were identified when the gender of the entrepreneur was considered. Specifically, results show that companies in the industrial sector led by men are less likely to achieve high performance compared to those in the commercial sector. The age of women entrepreneurs is also a factor that affects business performance.

The financial behavior of the entrepreneur is a variable that contributes significantly to the performance of small and medium-sized businesses; therefore, continuing to explore what influences the behavior of the entrepreneur is essential for the design of strategies aimed at the survival and growth of SMEs. The results of this research can serve as a basis for policy design aimed at improving the entrepreneur's financial decision-making based on their training to keep written records, income and expenses recording, cash flow projections, and budgets. This becomes very important in the context of a developing economy, where most MSMEs have a reduced life expectancy and difficulties in accessing loans and financing.

A limitation of the study is the relatively small size of the sample. Future research should extend the analysis to other regions of Mexico with larger samples. Likewise, other social variables that influence the financial behavior of entrepreneurs, such as family ties and informal financing, could be explored.

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