Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6, 8268-8280
2024
Publisher: Learning Gate
DOI: 10.55214/25768484.v8i6.3790

Variables determining "Drop-By-Drop" Loan as a financing method

Jhony Alexander Barrera Lievano[1*], Sandra Miyey Parra Ramirez[2], Edgar Olmedo Cruz Mican[3], Juanita Ruíz López[4]
[1,2,3]Corporación Universitaria Minuto de Dios - UNIMINUTO; jhony.barrera.lievano@gmail.com (J.A.B.L.) andra.parra@uniminuto.edu (S.M.P.R.) ecruz@uniminuto.edu (E.O.C.M.)
[4]Fundación Universitaria del Área Andina; jruiz189@areandina.edu.co (J.R.L.).

Abstract: Micro, small, and medium-sized enterprises - MSMEs are characterized by contributing significantly to nations' economies worldwide, being dynamic agents of employment, supplying goods and services, and paying taxes. Among the factors that affect the sustainability and durability of these organizations is the financing to which they access the development of their activities. In Colombia, the figure of loans called "drop-by-drop" exists since illegality, which due to its characteristics generates problems of sustainability and growth for MSMEs that access them. This research was carried out to determine if there is a linear relationship between variables associated with access to loans "drop-by-drop". It was developed under a quantitative, correlational, non-experimental, and transactional approach. We worked with a probabilistic sample. As the main findings, it was obtained that between the analysis variables, there is a correlation at different levels; In the same way, it was possible to identify two particular phenomena, the first, is that more than 50% of MSMEs have access to credits neither with the formal nor with the informal financial sector, the second, that those that access financing with the informal system are They submit to the conditions imposed by the lenders, among which are high interest rates and putting their businesses, their families and even their lives at risk. The main conclusion is the need to create financing products from the formal actors of the country's financial system, which responds to the needs of MSMEs since an unattended potential market is evident.

Keywords: *Business financing, Credits, Enterprises, Loans, Trade credit.*
JEL Classification: *G300.*

1. Introduction

Every source of business financing affects the potential economic outcomes that a business can achieve. However, access to various financing sources is limited and can depend, for example, on the company's size (Franco Gómez et al., 2019). Although there is no globally unified definition for micro, small, and medium-sized enterprises (MSMEs), it is evident that these types of businesses constitute the majority in both Latin America (Dini & Stumpo, 2020) and worldwide (Arce et al., 2021), a phenomenon also reflected in Colombia (Barrera Lievano & Parra Ramírez, 2020). In fact, in developed economies such as the United States and the European Union, as well as in underdeveloped or developing countries, including those in Latin America, MSMEs make up over 90% of all businesses (Noboa et al., 2020).

MSMEs are business units that significantly benefit the economy. Economic growth within a country is closely tied to internal productivity, a context in which these enterprises play a crucial role. In terms of figures, according to Arellana et al. (2020), 96% of businesses in Colombia are MSMEs, 90% of which are smaller in scale (Moreno-Gómez et al., 2023), collectively contributing significantly to the nation's Gross Domestic Product (GDP) (Torres-Medina & Márquez, 2020).

In Colombia, micro, small, and medium-sized enterprises are classified as specified in Decree 957 of 2019, where company size is determined based on economic sector, number of employees, and income from ordinary activities, as outlined below:

* Correspondence: jhony.barrera.lievano@gmail.com

Table 1.
Enterprises classification by size – Colombia.

Sector	Classification variable	Small-sized	Medium-sized
	Number of workers (for all)	Between 11 and 50	Between 51 and 200
Manufacturer	Annual ordinary income measured in UVT*	Between 23,563 and less than or equal to 204,995.	Greater than 204,995 and less than or equal to 1,736,565.
Services	Annual ordinary income measured in UVT	Between 32,988 and less than or equal to 131,951.	Greater than 131,951 and less than or equal to 483,034.
Commerce	Annual ordinary income measured in UVT	Between 44,769 and less than or equal to 431,196.	Greater than 431,196 and less than or equal to 2,160,692.

Source: Lievano et al. (2022). *UVT: Tax value unit.*

The study of financing sources accessed by MSMEs is particularly relevant because, due to their size and limited resources, they are vulnerable to sudden economic changes, such as those brought on by COVID-19. Likewise, it is important to remember that companies are created to maximize returns for their owners (Rosas-Rodríguez et al., 2023), and their management is expected to strive for high longevity rates, understood as sustainability in the market (Geraldo-Campos et al., 2022).

Credit, as a business financing method, plays a social role in the economy since access to credit promotes the country's economic and social growth and development. Credit is offered by both public and private sectors and made available under government regulations and conditions set by financial intermediaries based on factors like risk.

In Colombia, the formal credit supply does not fully meet market needs due to the requirements imposed by financial institutions (Báez Roa & Puentes Montañez, 2018), creating a gap filled by the informal sector. This sector serves an excluded segment under conditions unregulated by the government but overseen by private lenders.

"Drop-by-drop" loans are an informal loan modality, which, depending on specific characteristics—such as the interest rates charged, and collection methods employed—can be considered part of the illegal market (Barrera Lievano & Parra Ramírez, 2020). MSME owners' resort to this type of financing due to several factors, including barriers set by formal financial institutions, lack of financial education, and distrust of financial institutions (Lievano and Ramirez, 2024).

This study aims to identify correlations between various factors associated with MSME owners in Bogotá who use "drop-by-drop" loans as a business financing method.

1.1. The Social Function of Credit

Credit plays a significant role in the economy of any nation due to the impact it can generate. Access to financial services (mainly credit) can provide borrowers with better conditions and opportunities for their well-being and quality of life (Duta-Uyaguari et al., 2021). Global initiatives like the Grameen Bank have been established, which focus on providing small amounts of money (microloans) to improve the living conditions of its borrowers (Mourão, 2019).

The provision of credit can come from private or public resources. Indeed, when private intermediation does not meet the needs of the economy, the state should intervene (in credit placement) to help the population achieve economic and social well-being that contributes to their dignity as human beings (Posada, 1957). However, due to the demands and limitations of the formal financial system, at times it does not meet the credit needs of the population from a social function perspective. This includes the provision of working capital loans, educational loans, and housing loans, among others, which help achieve minimum standards in the development of people's living conditions and quality of life.

This gap is often filled by the informal sector (Maza & Rivera, 2023), which operates without the specialization or authorization of authorities (Obando-Bastidas et al., 2016). These informal lenders are

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790

sometimes illegal, taking advantage of an unregulated market to charge high interest rates (Barrera Lievano & Parra Ramírez, 2020), overburdening borrowers, and harming society in two ways. On one hand, they fail to achieve the objective of the social function of credit, as borrowers are forced to accept high interest rates that do not allow them to significantly improve their living conditions. On the other hand, they provide funds to organized crime groups (Villamizar Moreno & Pobre Otálora, 2018), which harm society.

It can be asserted that people living in poverty, or near it, frequently resort to informal financing mechanisms (Inglada Galiana et al., 2015). This phenomenon occurs due to the exclusion caused by the formal financial system's requirements, such as collateral, personal guarantees, documentation, income levels, and credit history, among others, which are imposed by formal institutions to mitigate the risk of non-repayment of loans (Valencia et al., 2020).

From the perspective of the business of money collection and distribution, exercised by financial institutions, these channel resources from people with excess capital, with the premise of providing them with economic benefits (Ordóñez Granda et al., 2020). This activity allows formal intermediaries to allocate resources through credit, ensuring that capital circulates in the economy and is used, among other things, to finance business activities, education, housing, and more.

1.2. Access to Colombia's Financial System

Access to the formal financial system for MSMEs is limited, among other reasons, due to the difficulty financial institutions face in obtaining the proper information due to asymmetry, opacity, and, in some cases, its validity (Rocca Espinoza et al., 2018). Other relevant factors that condition access to credit for these types of companies include the lack of fixed assets to back the debt (Saavedra García et al., 2021), the lack of experience in management, and the profitability that financial institutions may derive (Danos & Romero, 2020).

In Colombia, it is a reality that the limitations faced by micro, small, and medium-sized enterprises in accessing formal credit from financial institutions hinder their growth (Barrera Lievano & Parra Ramírez, 2020). From a financial standpoint, this phenomenon occurs because MSMEs lack access to resources for developing their commercial activities, and the benefits that debt generates, such as the deduction of interest from profits before calculating the income tax (Ramírez-Miranda et al., 2022), which lowers the taxable base and thus the amount to be taxed.

Regarding microenterprises, according to the National Association of Financial Institutions (2018), data collected in the Large Survey of Microenterprises showed that, in terms of financing with the financial system, between 13% and 15% of these production units, depending on their economic sector, applied for credit in the second half of 2017, with an approval rate of 96% for the industrial sector, 93% for the commercial sector, and 87% for the services sector.

For the second half of 2019, the National Association of Financial Institutions (2020) found that microenterprises saw a significant overall increase in taking credit from financial institutions. On average, depending on their economic sector, between 23% and 29% applied for credit. As for the loan approval rates, the industrial sector registered 78%, the services sector 75%, and the commercial sector 86%, which represents a reduction in all cases compared to what was recorded in 2017.

In the second half of 2018, according to the Large SME Survey (Small and Medium Enterprise), on average across sectors, 21% of SMEs applied for credit from the financial system, showing a significant reduction in the formal credit applications by these production units compared to previous periods, with an approval rate of 92% for the commercial sector, 90% for the industrial sector, and 86% for the services sector (National Association of Financial Institutions, 2019). The same source states that, regarding whether the approved amount by the financial institution matched the requested amount, on average across the industrial, commercial, and services sectors, 84.3% said yes.

For the first half of 2020, under the global conditions of the COVID-19 pandemic, the National Association of Financial Institutions (2021) reported that SMEs applied for more credit compared to the second half of 2018, with 33% from the services sector, 30% from the industrial sector, and 24% from the commercial sector, representing an average of 29% across SMEs. Regarding the approval rate, it was 87%, 93%, and 93%, respectively, which also represents an increase in the approval rate. As for

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790

whether the amount approved by the financial institution matched the requested amount, on average, between the industrial, commercial, and services sectors, 44.6% said yes, a nearly 50% decrease compared to the second half of 2018, with the industrial sector showing the greatest decrease from 86% to 28%.

A decisive factor in the increased borrowing by MSMEs was the economic crisis caused by the COVID-19 pandemic in 2020 and the government's debt guarantee program through the National Guarantee Fund (FNG) as a contingency to the situation.

The data presented illustrate a complex reality for Colombia's economy regarding the growth and strengthening of its MSME sector, as in all cases, access to credit does not exceed 35% for these units, depending on their size.

However, there is another factor that limits MSMEs' access to credit, which is not related to the financial system itself but is linked to the business owner: voluntary exclusion from the formal financing system (National Association of Financial Institutions, 2020). This phenomenon arises from factors associated with culture, distrust in the financial system (Sarmiento-Arévalo et al., 2020), and lack of financial education.

1.3. "Drop-by-Drop" Loans

The "drop-by-drop" loans (also called " Credit drop-by-drop" "express loans" or "pay daily") is a financing phenomenon that arises in the informal system, and in certain cases, is characterized by being illegal (Barrera Lievano & Parra Ramírez, 2020).

Not everything informal is illegal. Regarding financing, as stipulated by Law 599 of 2000, from the informal sector (understood as not being part of the formal financial system), an individual can lend money and charge an interest rate that does not exceed half of the prevailing current bank interest rate for the period certified by the supervising authority.

The "drop-by-drop" phenomenon is based on the granting of a loan that typically does not require collateral, is delivered immediately, and is repaid in short installments, which may be daily, weekly, or at other intervals (Renaud, 2019). It is characterized by charging an interest rate that sometimes exceeds the legally established rate, which can reach up to 20% per day (Holguín, 2017).

Although the literature on this type of loan is limited, some intrinsic characteristics of this form of financing have been documented, such as the dependency it generates for borrowers because the profits that MSMEs can generate are spent on repaying the high interest rates they assume (Holguín, 2017), or its association with criminal gangs that manage this type of lending and "guarantee" the return of the money borrowed through violence (Renaud, 2019). This can sometimes lead to borrowers being forced to leave their homes, losing their businesses, the murder of family members of the borrower or the borrower themselves, or inheriting debts (Hernandez García & Oviedo Gómez, 2016).

Among the reasons for accessing "drop-by-drop" loans, authors such as Alvis-Puentes et al. (2022) mention the vulnerability of the borrower, Obando-Bastidas et al. (2016) refer to academic background, and Barrera and Parra (Barrera Lievano & Parra Ramírez, 2020) refer to the level of education of the business owner and the size of the business. Regarding the latter, Barrera et al. (2022) also mention that the business's age is a determining factor.

2. Materials and Methods

A quantitative methodology was developed, with a correlational, non-experimental, and cross-sectional approach (Hernández Sampieri & Mendoza Torres, 2018). For data collection, a survey was used as a tool to gather primary data, which was applied to owners, managers, or administrators of MSMEs (according to the legislation in force as of December 31, 2020) in the city of Bogotá, involved in the commercial activity of selling unprocessed food.

Since the research focuses on collecting primary data from individuals, the ethical considerations outlined in the Helsinki Declaration were considered. Therefore, each participant was asked to sign an informed consent form, which had prior approval from the Ethics Committee of the higher education institution UNIMINUTO. In this form, participants were informed of their rights regarding voluntary

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790

participation in the process and the possibility of withdrawing from it at any time without any consequences.

A sample of 385 MSMEs was determined based on the following calculation parameters: population size (unknown), heterogeneity (50%), confidence level (95%), and an accepted margin of error of 5%.

Regarding the survey, its development was 100% anonymous. The instrument was validated through a pilot test with ten members of the population, applying the test-retest method, which demonstrated reliability in the collected data. The research worked with eight variables associated with taking "drop-by-drop" loans: V1 – Economic stability; V2 – Financial knowledge; V3 – Preference for taking "drop-by-drop" loans; V4 – Need for taking "drop-by-drop" loans; V5 – Risk of taking "drop-by-drop" loans; V6 – Number of "drop-by-drop" loans taken in a year; V7 – Distrust in financial institutions; V8 – Cost of "drop-by-drop" loan interest rates. Twelve correlational hypotheses were formulated; for each of them, two variables were addressed, as presented in Table 2.

Table 2.
Research hypothesis.

Variables		**Hypothesis**	
Economic stability	Need for taking 'drop-by-drop' loans	Ha-1: There is a linear relationship between the variables.	H0-1: There is no linear relationship between the variables.
Economic stability	Number of 'drop-by-drop' loans taken in a year	Ha-2: There is a linear relationship between the variables.	H0-2: There is no linear relationship between the variables.
Financial knowledge	Preference for taking 'drop-by-drop' loans	Ha-3: There is a linear relationship between the variables.	H0-3: There is no linear relationship between the variables.
Financial knowledge	Danger in taking 'drop-by-drop' loans	Ha-4: There is a linear relationship between the variables.	H0-4: There is no linear relationship between the variables.
Financial knowledge	Distrust in financial institutions	Ha-5: There is a linear relationship between the variables.	H0-5: There is no linear relationship between the variables.
Preference for taking 'drop-by-drop' loans	Danger in taking 'drop-by-drop' loans	Ha-6: There is a linear relationship between the variables.	H0-6: There is no linear relationship between the variables.
Preference for taking 'drop-by-drop' loans	Distrust in financial institutions	Ha-7: There is a linear relationship between the variables.	H0-7: There is no linear relationship between the variables.
Need for taking 'drop-by-drop' loans	Danger in taking 'drop-by-drop' loans	Ha-8: There is a linear relationship between the variables.	H0-8: There is no linear relationship between the variables.
Need for taking 'drop-by-drop' loans	Number of 'drop-by-drop' loans taken in a year	Ha-9: There is a linear relationship between the variables.	H0-9: There is no linear relationship between the variables.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790

Variables		Hypothesis	
Need for taking 'drop-by-drop' loans	Cost of the interest rate on 'drop-by-drop' loans	Ha-10: There is a linear relationship between the variables.	H0-10: There is no linear relationship between the variables.
Danger in taking 'drop-by-drop' loans	Number of 'drop-by-drop' loans taken in a year	Ha-11: There is a linear relationship between the variables.	H0-11: There is no linear relationship between the variables.
Cost of the interest rate on 'drop-by-drop' loans	Number of 'drop-by-drop' loans taken in a year	Ha-12: There is a linear relationship between the variables.	H0-12: There is no linear relationship between the variables.

The survey consisted of 20 questions divided into four sections: the first focused on validating that the respondent met the population parameters; the second focused on collecting sociodemographic data such as gender, education level, age range, among others; the third aimed to gather data related to the taking of "drop-by-drop" loans and their cost; and finally, a fourth section contained seven items to be evaluated according to the respondents' perceptions using a Likert scale measurement format, with one item to be quantified based on the MSME's actual situation.

The items to be evaluated by the respondents were as follows:1) From your point of view, rate from one to five, with one being the lowest value and five the highest, the current economic stability of the business/company you own, manage, or administer (associated with variable 1); 2) From your point of view, rate from one to five, with one being the lowest value and five the highest, your knowledge and management of the finances of the business/company you own, manage, or administer (associated with variable 2); 3) From your point of view, rate from one to five, with one being the lowest value and five the highest, your preference for taking "drop-by-drop" loans / daily loans over other types of loans with financial institutions, to finance the business/company you own, manage, or administer (associated with variable 3); 4) From your point of view, rate from one to five, with one being the lowest value and five the highest, your need to take "drop-by-drop" loans / daily loans to finance the business/company you own, manage, or administer (associated with variable 4); 5) From your point of view, rate from one to five, with one being the lowest value and five the highest, how dangerous you think taking a "drop-by-drop" loan / daily loan can be (associated with variable 5); 6) Please indicate how many "drop-by-drop" loans / daily loans you take in a year to finance the business/company you own, manage, or administer (associated with variable 6); 7) From your point of view, rate from one to five, with one being the lowest value and five the highest, how much you distrust financial institutions like banks and cooperatives (associated with variable 7); and, 8) From your point of view, rate from one (1) to five (5), with one (1) being the lowest value and five (5) the highest, how high you consider the interest rate charged when you request a "drop-by-drop" loan / daily loan (associated with variable 8).

To validate the hypotheses, the Pearson correlation coefficient (Pearson's R) was calculated between the different variables (Barrera Lievano, 2022) to determine the linear correlation; to validate or invalidate the null hypothesis (H0), the result of the significance level was used as the basis; H0 was rejected when the significance level was equal to or less than 0.05, and the alternative hypothesis (Ha) regarding the existence of linear correlation was accepted (Lievano et al., 2022). SPSS statistical software was used to process the information.

For the analysis of the resulting value (which ranges between -1 and +1), the interpretation of the magnitude of the Pearson correlation coefficient (R of Pearson) was used according to Cohen, where:

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790

Table 3.
Magnitudes interpretation of the Pearson correlation coefficient.

Range of rxy values	Qualitative interpretation
$0.00 \leq \lvert rxy \rvert < 0.10$	Null correlation
$0.10 \leq \lvert rxy \rvert < 0.30$	Weak correlation
$0.30 \leq \lvert rxy \rvert < 0.50$	Moderate correlation
$0.50 \leq \lvert rxy \rvert = 1.00$	Strong correlation

Source: Hernandez Lalinde, et al., (2018).

3. Results

After completing the data collection process, it was identified that 100% of the respondents are owners, managers, or administrators of micro, small, or medium-sized enterprises, according to the legislation in force as of December 31, 2020. Of these, 66.5% were men and 33.5% women, with none identifying as another gender. Regarding the size of the business, it was found that 42.1% of the respondents represent microenterprises, 46.7% small enterprises, and 11.2% medium-sized enterprises.

Regarding educational level, it was found that 46% reported having completed all of high school (secondary education), 28.3% completed only primary education, and 0.2% (one person) claimed not to have any schooling. The remaining 25.5% pursued higher education, with 7.8% having technical degrees, 6.5% having a technological degree, and 11.2% having completed a university-level professional degree.

Regarding the use of credit as a method of financing for the business, 49.9% of respondents reported having debt from loans for this purpose, while 50.1% indicated they do not. As for the use of "drop-by-drop" loans as a financing method, 37.9% stated that they have taken out such loans for their businesses, while 62.1% indicated they have not. This means that 100% of MSMEs surveyed have debt from loans, 76% have debt from "drop-by-drop" loans.

Concerning the question related to the interest rate charged on "drop-by-drop" loans, respondents reported that it ranged from 42% annual effective rate (APR) to greater than 100% APR, as shown below: 6.8% reported an interest rate between 75% APR and 100% APR, and 91.9% reported an interest rate greater than 100% APR. It is noteworthy that the highest concentration was in rates higher than 100% APR. When verifying these rates, they reached values of 10%, 20%, 30%, 60%, and up to 150% effective monthly rates.

Regarding the relationships between the different variables associated with the hypotheses, Table 4 and Table 5 present the correlation results, and the level of significance obtained for each of these.

Table 4.
Results Pearson's correlation coefficient between variables (part 1).

		Economic stability	Financial knowledge	Need for taking 'drop-by-drop' loans
Need for taking 'drop-by-drop' loans	Pearson Correlation	-0.344**	-0.333**	1
	Sig. (2-tailed)	0,000	0,000	
	N	148	148	385
Number of 'drop-by-drop' loans taken in a year	Pearson Correlation	-0.316**	-0.326**	0.548**
	Sig. (2-tailed)	0.000	0.000	0.000
	N	146	146	146
Distrust in financial institutions	Pearson Correlation	-0.222**	-0.267**	0.268**
	Sig. (2-tailed)	0.007	0.001	0.001
	N	145	145	145
Cost of the interest rate on 'drop-by-drop' loans	Pearson Correlation	0.093	0.064	-0.084
	Sig. (2-tailed)	0.259	0.437	0.312
	N	148	148	148

Source: **Correlation is significant at the 0,01 level (2-tailed). *Correlation is significant at the 0,05 level (2-tailed).

Table 5.
Results Pearson's correlation coefficient between variables (part 2).

		Preference for taking 'drop-by-drop' loans	Danger in taking 'drop-by-drop' loans	Number of 'drop-by-drop' loans taken in a year
Financial knowledge	Pearson Correlation	-0.289**	0.042	-0.326**
	Sig. (2-tailed)	0.000	0.614	0,000
	N	148	148	146
Need for taking 'drop-by-drop' loans	Pearson Correlation	0.633**	-0.180*	0.548**
	Sig. (2-tailed)	0.000	0.029	0.000
	N	148	148	146
Danger in taking 'drop-by-drop' loans	Pearson Correlation	-0.686**	1	-0.058
	Sig. (2-tailed)	0.000		0.486
	N	148	385	146
Distrust in financial institutions	Pearson Correlation	0.264**	-0.209*	0.079
	Sig. (2-tailed)	0.001	0.012	0.350
	N	145	145	144
Cost of the interest rate on	Pearson Correlation	-0.301**	0.709**	-0.018

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790

		Preference for taking 'drop-by-drop' loans	Danger in taking 'drop-by-drop' loans	Number of 'drop-by-drop' loans taken in a year
'drop-by-drop' loans	Sig. (2-tailed)	0.000	0.000	828
	N	148	148	146

As can be seen, between the variables of "economic stability" and "need for taking 'drop-by-drop' loans" a linear relationship of -0.344 was found with significance at the 0.01 level. This represents a moderate inverse correlation with a high degree of significance, which allows for the interpretation that, the lower the perceived economic stability by the entrepreneur, the greater the perceived need to resort to taking "drop-by-drop" loans.

Regarding the variables of "economic stability" and "number of 'drop-by-drop' loans taken in a year" a linear relationship of -0.316 was found with significance at the 0.01 level, which represents a moderate inverse correlation with a high degree of significance. In this case, the result allows us to interpret that, the lower the perceived economic stability by the entrepreneur, the greater the number of "drop-by-drop" loans taken.

Regarding the variables of "financial knowledge" and "preference for taking 'drop-by-drop' loans" a linear relationship of -0.242 was found with significance at the 0.01 level, which indicates a weak inverse correlation.

For the variables of "financial knowledge" and "distrust in financial institutions", a linear relationship of -0.267 with significance at the 0.01 level was found, indicating a weak inverse correlation.

As evidenced in the data processing for the variables of "preference for taking 'drop-by-drop' loans" and "danger in taking 'drop-by-drop' loans" a linear relationship of -0.686 with significance at the 0.01 level was found. This represents a strong inverse correlation with a high degree of significance. This allows for the interpretation that, the lower the perception of danger in taking "drop-by-drop" loans by the entrepreneur, the greater the preference for taking such loans.

Regarding the variables of "preference for taking 'drop-by-drop' loans" and "distrust in financial institutions" a linear correlation of 0.264 with significance at the 0.01 level was found, indicating a weak direct correlation.

When processing the information of the variables of "need for taking 'drop-by-drop' loans" and "danger in taking 'drop-by-drop' loans" a linear relationship of -0.180 with significance at the 0.05 level was found, denoting a weak inverse linear correlation.

Regarding the variables of "need for taking 'drop-by-drop' loans" and "number of 'drop-by-drop' loans taken in a year" a linear relationship of 0.548 with significance at the 0.01 level was found, representing a strong direct correlation with a high degree of significance. This allows us to infer that the greater the perception of the need to take "drop-by-drop" loans by the entrepreneur, the greater the number of such loans taken within a year.

After processing the data from the variables of "need for taking 'drop-by-drop' loans" and "cost of the interest rate on 'drop-by-drop' loans" a linear relationship of -0.084 was found, without a significant level of significance.

Regarding the variables of "danger in taking 'drop-by-drop' loans" and "number of 'drop-by-drop' loans taken in a year" a linear relationship of -0.058 was found, without a significant level of significance.

Concerning the variables of "cost of the interest rate on 'drop-by-drop' loans" and "number of 'drop-by-drop' loans taken in a year" a linear relationship of -0.018 was found, without a significant level of significance. Finally, for the variables of "financial knowledge" and "danger in taking 'drop-by-drop' loans" a linear relationship of 0.042 was found, without a significant level of significance.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790

4. Discussion

The literature on the "drop-by-drop" credit system is limited, especially outside of Colombia, as it is a phenomenon that originated in the country. Although it has been "exported" to other nations, as seen in press articles and even in journalistic documentaries, there is no extensive academic or scientific literature on the phenomenon.

The results from processing the collected information empirically show that just over 50% of the Mipyme (micro, small, and medium enterprises) selected for the sample do not have debts, loans, or credit to finance their commercial activities. This aligns with what is identified in existing literature (Asociación Nacional de Instituciones Financieras, 2020; Sarmiento et al., 2020). This is a significant finding, considering that financing can be a growth tool for businesses, especially for smaller ones.

Regarding the percentage of Mipyme that reported having debts, 76% use "drop-by-drop" loans as a form of financing. This is both representative and alarming, given the conditions associated with this type of lending. These loans are not only linked to limiting the growth of the business due to the high interest rates charged (Barrera Lievano & Parra Ramírez, 2020), but also to security risks for the borrower and their family.

Regarding the interest rates charged by "drop-by-drop" lenders, the participants reported paying rates exceeding 75% effective annual (EA), which falls outside the legal framework and validates the claims made by Holguín (2017), who asserts that rates can sometimes reach up to 20% daily.

As for the hypotheses presented in the research, all of them are related to the entrepreneur's perception of various factors associated with the economic activity of their business. A linear relationship was found between some of these variables, as presented below.

Table 6.
Result validated hypothesis.

Variables		**Hypothesis validated**
Economic stability	Need for taking 'drop-by-drop' loans	Ha-1: There is a linear relationship between the variables.
Economic stability	Number of 'drop-by-drop' loans taken in a year	Ha-2: There is a linear relationship between the variables.
Financial knowledge	Preference for taking 'drop-by-drop' loans	Ha-3: There is a linear relationship between the variables.
Financial knowledge	Danger in taking 'drop-by-drop' loans	H0-4: There is no linear relationship between the variables.
Financial knowledge	Distrust in financial institutions	Ha-5: There is a linear relationship between the variables.
Preference for taking 'drop-by-drop' loans	Danger in taking 'drop-by-drop' loans	Ha-6: There is a linear relationship between the variables.
Preference for taking 'drop-by-drop' loans	Distrust in financial institutions	Ha-7: There is a linear relationship between the variables.
Need for taking 'drop-by-drop' loans	Danger in taking 'drop-by-drop' loans	Ha-8: There is a linear relationship between the variables.
Need for taking 'drop-by-drop' loans	Number of 'drop-by-drop' loans taken in a year	Ha-9: There is a linear relationship between the variables.
Need for taking 'drop-by-drop' loans	Cost of the interest rate on 'drop-by-drop' loans	H0-10: There is no linear relationship between the variables.
Danger in taking 'drop-by-drop' loans	Number of 'drop-by-drop' loans taken in a year	H0-11: There is no linear relationship between the variables.
Cost of the interest rate on 'drop-by-drop' loans	Number of 'drop-by-drop' loans taken in a year	H0-12: There is no linear relationship between the variables.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790

The correlations found between the variables "preference for taking drop-by-drop credit" and "danger in taking drop-by-drop credit" (-0.686) and the variables "need to take drop-by-drop credit" and "number of drop-by-drop loans taken in a year" (0.548) are highlighted due to the magnitude found according to Cohen's interpretation proposal, as these results show a strong linear correlation. In both cases, the validity of the result is supported by the level of significance found, which was 0.01 in both situations.

Regarding the variables "economic stability" and "need to take drop-by-drop credit" (-0.344) and the variables "economic stability" and "number of drop-by-drop loans taken in a year" (-0.316), their results show a moderate linear correlation. In both cases, the validity of the result is supported by the level of significance found, which was 0.01 in both situations.

As for the variables "financial knowledge" and "preference for taking drop-by-drop credit" (-0.242), "financial knowledge" and "distrust in financial institutions" (-0.267), "preference for taking drop-by-drop credit" and "distrust in financial institutions" (0.264), and "need to take drop-by-drop credit" and "danger in taking drop-by-drop credit" (-0.180), their results show a weak linear correlation. In all cases, the validity of the result is supported by the level of significance found, which in the first three cases was at the 0.01 level, and in the last pair of variables, at the 0.05 level, which is still considered significant. As for the remaining variables, the results show null linear correlations and no significant levels.

5. Conclusions

The development of the research leads to the questioning of two fundamental points: first, although not all Mipyme (micro, small, and medium enterprises) resort to credit, nearly 50% of them do, which allows us to infer the existence of a large demand for financing products that meet the particularities of these organizations, considering that they represent the largest number of companies in Colombia and in the world. Secondly, given this reality, there is a noticeable gap in the legal offer of credit in Colombia that is tailored to the specific needs of these types of enterprises. Empirical evidence shows that there is a high turnover in the use of drop-by-drop credit by Mipyme due to the needs of entrepreneurs, their financial knowledge, and their trust in formal financial institutions.

It is also identified that entrepreneurs adapt to the conditions imposed by drop-by-drop lenders, even paying high interest rates, and as evidenced by the consulted literature, assuming personal risks that could lead to physical and family harm.

Considering this situation and understanding the importance of Mipyme for the health of the economy, there is a need for the creation of financing products by the formal market with specific characteristics that adapt to the needs and capacities of these organizations. Likewise, the creation of public policies in this area is necessary to strengthen micro, small, and medium enterprises in the country.

The main limitations of the study were the inability to generate a random sample selection due to the geographic dimensions of the city and the impossibility of determining a system that would allow all Mipyme to have the same chance of being selected as part of the sample, in addition to the existence of criminal networks that engage in offering drop-by-drop credit in the main areas where businesses dealing with unprocessed food are located, which limited the participation of the target population.

Additionally, among the limitations was the scarce literature available on the phenomenon of drop-by-drop credit, which is even more limited in scientific databases like Scopus and WOS.

For future research, it is proposed to delve into the causes of the correlations identified, which would help explain what was empirically observed in this study, as well as investigate the reasons why more than 50% of Mipyme do not acquire debts (with the formal sector) as a method of financing.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790

References

[1] Alvis-Puentes, J. F., Alarcón, E. R. T., & Rivera, D. R. S. (2022). Disonancia intrínseca de las matemáticas: El caso del crédito 'drop-by-drop'. Sophia, 18(2), Article 2. https://doi.org/10.18634/sophiaj.18v.2i.1234

[2] Arce, A., Lorena Trinidad, M., & Moreno Zambrano, M. (2021). Las Mipymes turísticas, un acercamiento a su dimensión. Caso región Costa Sur del estado de Jalisco, México. En Perspectivas locales y regionales sobre el desarrollo social y económico (Vol. 1, p. 13). Colección Ciencias Sociales y Economía.

[3] Arellana, L. C., Chinchilla, M. F., & Avila, M. E. E. (2020). OBSTÁCULOS EN LA IMPLEMENTACIÓN DE CONTROL INTERNO EN MIPYMES EN COLOMBIA.

[4] Asociación Nacional de Instituciones Financieras. (2018). GRAN ENCUESTA a las Microempresas. Informe resultados 2018. 56.

[5] Asociación Nacional de Instituciones Financieras. (2019). La Gran Encuesta Pyme. Lectura Nacional Primer semestre de 2019. 46.

[6] Asociación Nacional de Instituciones Financieras. (2020). Gran Encuesta de las Microempresas. Informe de resultados 2020. 76.

[7] Asociación Nacional de Instituciones Financieras. (2021). La Gran Encuesta Pyme. Lectura Nacional Informe de Resultados Segundo Semestre de 2020. 53.

[8] Báez Roa, M. D. P., & Puentes Montañez, G. A. (2018). Parámetros financieros para la toma de decisiones en pequeñas y medianas empresas del municipio Duitama, Colombia. Revista de Ciencias Sociales, 24(1), 67-84. https://doi.org/10.31876/rcs.v24i1.24933

[9] Barrera Lievano, J. A. (2022). Análisis empírico de correlación entre el indicador de estructura de capital y el indicador de margen de utilidad neta en pequeñas y medianas empresas. Revista de Métodos Cuantitativos para la Economía y la Empresa. https://doi.org/10.46661/revmetodoscuanteconempresa.4450

[10] Barrera Lievano, J. A., Mendez Ortiz, E., & Parra Ramirez, S. (2022). Asociación de dependencia de factores determinantes de acceso al crédito «drop-by-drop» en micro, pequeñas y medianas empresas. Apuntes: Revista de Ciencias Sociales, 49(91), 189-210. https://doi.org/10.21678/apuntes.91.1408

[11] Barrera Lievano, J. A., & Parra Ramírez, S. M. (2020). FACTORES DETERMINANTES PARA EL ACCESO DE LAS MIPYME AL CRÉDITO DROP-BY-DROP. Revista Republicana, 28, 217-236. https://doi.org/10.21017/Rev.Repub.2020.v28.a84

[12] Danos, H. F. V., & Romero, D. M. M. (2020). Factores limitantes y avances en la inclusión financiera de las micro, pequeñas y medianas empresas en el Perú. Revista Lidera, 15, 26-34.

[13] Dini, M., & Stumpo, G. (2020). Mipymes en América Latina: Un frágil desempeño y nuevos desafíos para las políticas de fomento. CEPAL. https://www.cepal.org/es/publicaciones/44148-mipymes-america-latina-un-fragil-desempeno-nuevos-desafios-politicas-fomento

[14] Duta-Uyaguari, E., Álava-Atiencie, G., Sigüenza-Orellana, S., & Pinos-Ramón, L. (2021). El microcrédito como potenciador del desarrollo local: Análisis de las condiciones de vida. Maskana, 12(2), Article 2. https://doi.org/10.18537/mskn.12.02.04

[15] Franco Gómez, M. del C., Gómez Gutiérrez, F., Serrano Orellana, K., Franco Gómez, M. del C., Gómez Gutiérrez, F., & Serrano Orellana, K. (2019). Determinantes del acceso al crédito para la PYME del Ecuador. Conrado, 15(67), 295-303.

[16] Geraldo-Campos, L. A., Moreno Estelle, S. P., Palacios Pizarro, C. S., & Tito Huamaní, P. L. (2022). Diseño y validación de escalas de perdurabilidad en emprendimiento empresarial. Retos, 12(24), 350-366. https://doi.org/10.17163/ret.n24.2022.09

[17] Hernandez García, E. A., & Oviedo Gómez, A. F. (2016). Mercado del crédito informal en Colombia: Una aproximación empírica. Ensayos de Economía, 26(49), 137-156. https://doi.org/10.15446/ede.v26n49.63820

[18] Hernández Lalinde, J. D., Espinosa Castro, J. F., Peñaloza Tarazona, M. E., Fernández González, J. E., Chacón Rangel, J. G., Toloza Sierra, C. A., Arenas Torrado, M. K., Carrillo Sierra, S. M., & Bermúdez Pirela, V. J. (2018). Sobre El Uso Adecuado Del Coeficiente De Correlación De Pearson: Definición, Propiedades Y Suposiciones. Archivos Venezolanos de Farmacología y Terapéutica. https://bonga.unisimon.edu.co/handle/20.500.12442/2469

[19] Hernández Sampieri, R., & Mendoza Torres, C. P. (2018). Metodología de la investigación: Las rutas cuantitativa, cualitativa y mixta. Mc Graw Hill.

[20] Holguín, P. J. M. (2017). Inclusión financiera, pero con negación del crédito. Un paso para el "drop-by-drop". Pluriverso, 9, Article 9.

[21] Inglada Galiana, M. E., Sastre Centeno, J. M., & Bilbao, M. C. D. M. (2015). Importancia de los microcréditos como instrumento de financiación en el desarrollo social. Revista Guillermo de Ockham, 13(2), 89-100. https://doi.org/10.21500/22563202.2264

[22] Lievano, J. A. B., & Ramirez, S. P. (2024). Educación financiera y servicios de microcrédito en empresas de la ciudad de Bogotá–Colombia. *Revista Venezolana de Gerencia: RVG*, *29*(105), 239-253. https://doi.org/10.52080/rvgluz.29.105.16

[23] Lievano, J. A., Parra Ramirez, S., & Parada, S. (2022). Análisis de clasificación empresarial por tamaño de países miembros o asociados de la Comunidad Andina – CAN. REVISTA INVESTIGACIÓN, DESARROLLO EDUCACIÓN, SERVICIO, TRABAJO. https://doi.org/10.31876/idest.v2i1.30

[24] Maza, L. A. C., & Rivera, A. H. (2023). Educación financiera y la gestión del crédito en los hogares mexicanos. Estudios económicos, 40(81), Article 81. https://doi.org/10.52292/j.estudecon.2023.3411

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790

[25] Moreno-Gómez, J., Londoño, J. C., & Zapata-Upegui, L. F. (2023). Marketing strategy and competitiveness: Evidence from Colombian SMEs | Tec Empresarial. https://doi.org/10.18845/te.v17i2.6701
[26] Mourão, G. N. (2019). O MODELO ORIGINAL DE MICROCRÉDITO E SUA VERSÃO BRASILEIRA: O QUE DEU ERRADO? Revista da FAE, 22(1), Article 1.
[27] Noboa, J. E. G., Pacheco, E. S. A., Cárdenas, C. V. G., & Pazmiño, A. M. A. (2020). Evolución de las Mipymes según el ciclo de vida. Universidad y Sociedad, 12(S(1)), Article S(1).
[28] Obando-Bastidas, J. A., Herrera-Sarmiento, G. I., & Rodríguez-Ladino, J. J. (2016). Los microempresarios y los cuentagotas en Villavicencio. Orinoquia, 20(2), 102. https://doi.org/10.22579/20112629.363
[29] Ordóñez Granda, E. M., Narváez Zurita, I., & Erazo Álvarez, J. C. (2020). El sistema financiero en Ecuador. Herramientas innovadoras y nuevos modelos de negocio. Revista Arbitrada Interdisciplinaria Koinonía, 5(10 (Julio-Diciembre 2020)), 195-225.
[30] Posada, O. A. (1957). La propiedad privada con función social. Estudios de Derecho, 17(51), Article 51. https://doi.org/10.17533/udea.esde.335547
[31] Ramírez-Miranda, M., González-Ruiz, J. D., & Duque-Grisales, E. (2022). Análisis de la estructura de capital en los principales sistemas bancarios centroamericanos en el período 2015-2019. Revista CEA, 8(17), Article 17. https://doi.org/10.22430/24223182.2047
[32] Renaud, M. C. (2019). Intermediación Financiera del Crimen Organizado. https://ar.ijeditores.com/pop.php?option=articulo&Hash=c8e998c798641dce0c73b0eb432fb671
[33] Rocca Espinoza, E., García Pérez De Lema, D., & Duréndez Gómez Guillamón, A. (2018). Factores determinantes para la concesión de crédito por parte de las entidades financieras a las Mipymes. Tec Empresarial, 12(1), 19-30. https://doi.org/10.18845/te.v12i1.3568
[34] Rosas-Rodríguez, B., Demmler, M., & Razo Zamora, L. A. (2023). Diversidad de género y desempeño financiero en empresas bursátiles mexicanas. Retos, 13(25), 161-178. https://doi.org/10.17163/ret.n25.2023.10
[35] Saavedra García, M. L., Aguilar Anaya, M. D. L. Á., & Tapia Sánchez, B. (2021). Financing in Women-Led Companies in Mexico City. Revista científica Pensamiento y Gestión, 49, 45-73. https://doi.org/10.14482/pege.49.305.42
[36] Sarmiento-Arévalo, I. E., Erazo-Álvarez, J. C., Narváez-Zurita, C. I., & Moreno, V. P. (2020). Estrategias de inclusión para el sistema financiero popular y solidario. Revista Arbitrada Interdisciplinaria Koinonía, 5(10), 671. https://doi.org/10.35381/r.k.v5i10.709
[37] Torres-Medina, F., & Márquez, F. J. (2020). SECTOR MIPYME EN COLOMBIA: ENTRE LA INFORMALIDAD Y LA FORMALIZACIÓN. Revista de Economía & Administración E-ISSN 2463-1035 ISSN 1794-7561, 17(2), Article 2. https://revistas.uao.edu.co/ojs/index.php/REYA/article/view/321
[38] Valencia, G. A. D., García, O., Vernazza, A., & Romero, R. (2020). Forms of informal financing of informal traders in Colombia Cases: Cúcuta, Ibagué and Villavicencio. Cuadernos de Economía, 43(123), Article 123.
[39] Villamizar Moreno, A. O., & Pobre Otálora, W. A. (2018). Multiterritorialidad en la comuna 8 de Medellín a partir de la relación entre comunidad, Policía Nacional y crimen organizado. Ciudad Paz-ando, 11(2), 84-96. https://doi.org/10.14483/2422278X.12199.

Edelweiss Applied Science and Technology
ISSN: 2576-8484
Vol. 8, No. 6: 8268-8280, 2024
DOI: 10.55214/25768484.v8i6.3790