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Financial Analysis in Micro and Small Businesses: Business features and their influence on financial ratios

Análisis Financiero en las MIPE: Rasgos del negocio y su influencia en las ratios financieras

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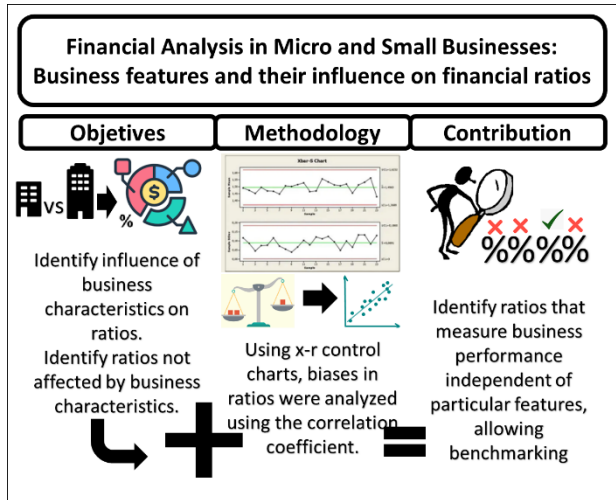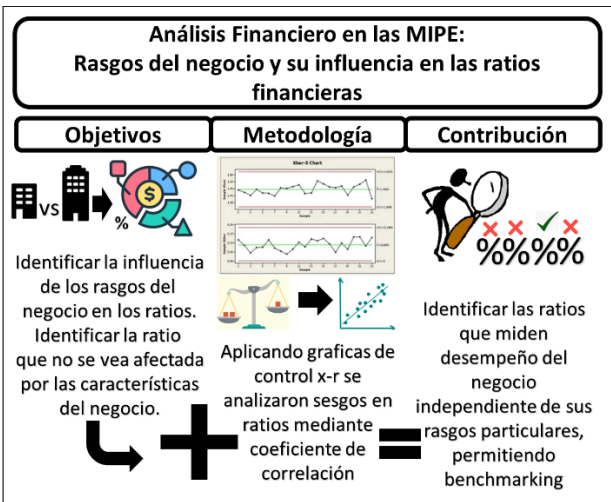
Abstract

For the financial analysis used in Micro and Small Enterprises (MIPE), the variables Net Profit, Return on Assets, Return on Shareholders' Equity and Net Margin were identified as representative indicators of the profitability of the business. The general objective of this research is to identify the influence of factors or characteristics of companies on the results of financial ratios, and to serve for comparison between businesses in a consistent and relevant manner. The research is applied, exploratory in depth, quantitative, with a non-experimental and transversal design. The methodology used is based on the selection of study subjects, obtaining financial indicators, analysis using X-R control charts, discussion and conclusions, in which it is determined that the Net Margin is the one that receives the least influence from the characteristics of the business.

Resumen

Para el análisis financiero utilizado en la Micro y Pequeña Empresa (MIPE), se identificaron a las variables Utilidad Neta, Retorno de Activos, Retorno de Capital Contable y Margen Neto como indicadoras representativas de la rentabilidad del negocio. La presente investigación tiene como objetivo general la identificación de la influencia de factores o características de las empresas en los resultados de las razones financieras, y servir para la comparación entre los negocios de manera consistente y pertinente. La investigación es aplicada, de profundidad exploratoria, de tipo cuantitativo, con diseño no experimental y de tipo transversal. La metodología utilizada parte de la selección de los sujetos de estudio, obtención de indicadores financieros, análisis mediante las gráficas de control X-R, discusión y conclusiones, en la que se determina que el Margen Neto es la que menor influencia recibe de las características del negocio.

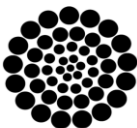**Financial Analysis in Micro and Small Businesses: Business features and their influence on financial ratios**

| Objetives | Methodology | Contribution |

Identify influence of business characteristics on ratios. Identify ratios not affected by business characteristics.

Using x-r control charts, biases in ratios were analyzed using the correlation coefficient.

Identify ratios that measure business performance independent of particular features, allowing benchmarking

Net margin, financial analysis, business profitability

Análisis Financiero en las MIPE: Rasgos del negocio y su influencia en las ratios financieras

| Objetivos | Metodología | Contribución |

Identificar la influencia de los rasgos del negocio en los ratios. Identificar la ratio que no se vea afectada por las características del negocio.

Aplicando graficas de control x-r se analizaron sesgos en ratios mediante coeficiente de correlación

Identificar las ratios que miden desempeño del negocio independiente de sus rasgos particulares, permitiendo benchmarking

Margen neto, análisis financiero, rentabilidad empresarial

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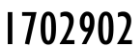
Introduction

In the analysis of the management models that MSMEs apply in the search for good results, it is essential to identify ratios that measure business performance and allow benchmarking with other companies. Within the analysis of financial statements, the one dedicated to the interpretation of financial results and the associated financial ratios most commonly used, show the company's situation influenced by business characteristics, often represented by nominal values such as sales volume and asset value. These features are different from company to company, so the results of the ratios will prevent objective comparison.

State of the art

For this study, the UN is the residual value of revenues over costs and expenses, reported in the income statement (Mena, 2007); ROA is defined as the ratio or rate of operating return of the company in proportion to the total assets available in the same accounting period, while ROI is the financial profitability (Contreras, 2006) obtained from the net profit over the capital provided by investors; while the MN is the ratio of profit to sales, which is the net profit after covering all costs and expenses (Hoz *et al*, 2008).

Mean and range charts, also called X-R control charts, aim to statistically track a variable to determine its variability and consistency, and thus determine whether its generation, or the results it shows, are under control (Becerra, 2024).

The definition of the control limits was carried out taking into account that by having four samples for each group of MIPES the value of A2 is 0.729 and for D4 it is 2.282 (Palacios and Gisbert, 2018).

Methodology

After the literature review, among the financial ratios dedicated to business profitability, the indicators of Net Profit (NP), Return on Assets (ROA), Return on Equity (ROI) and Net Margin (NM) were chosen to compare their consistency and relevance as an indicator of financial success and their degree of influence received from other business factors.

Analysis using X-R control charts was applied to determine the variability and consistency of each variable. To carry out the construction of the X-R Control Charts, responses were taken from 100 MSMEs, classified into 25 groups by sales amount; in this way, each of the 25 groups grouped four companies with comparable operating characteristics. With the information obtained, the results were compared, and the different correlations with the factors of sales, amount of total investment in the business and capital contributed by the shareholders were identified, thus arriving at the conclusions.

Results

Variable UN

In the case of the variable UN (see figure 1), when expressed in nominal values, it was observed that constantly and continuously each of the 25 groups in which the companies were classified for the study, presented representative values higher than the previous groups, so that group 1 is even below the lower control limit (LCI), in contrast, the last groups, corresponding to companies with higher sales, are even above the upper control limit (LCS). The result of the correlation coefficient for the variable UN was approximately 1.0.
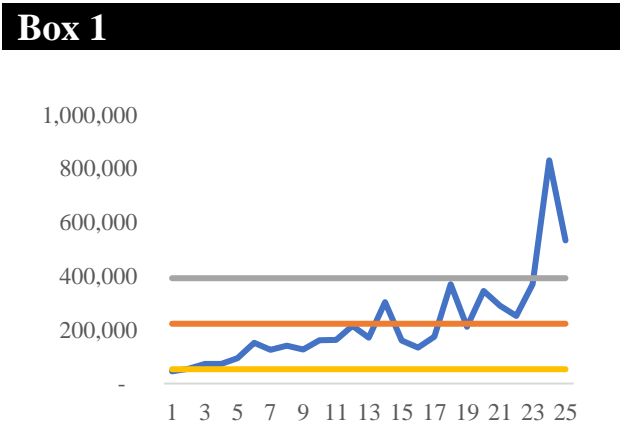
Box 1

Figure 1

Control chart X mean of UN

Source: Own Elaboration

In the case of the range control chart, the behaviour is similar. It was observed that the line of averages is smoother, but when referring to nominal values, the distribution is in the same direction as the previous one as shown in figure 2.
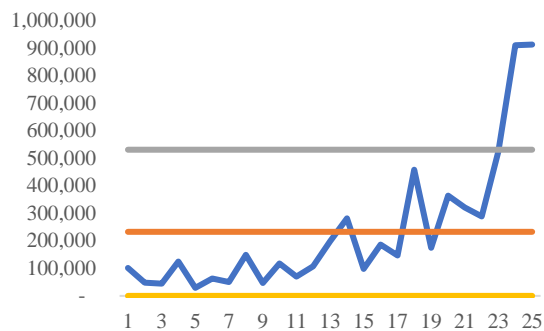
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Box 2

Figure 2

Control chart UN ranges

Source: Own Elaboration

Return on assets is the ratio of net income to total assets, and although the basis for the calculation is nominal values, the result can be comparable between different company sizes.

The result observed in the mean X control chart of the variable RA, as shown in figure 3, is more homogeneous; however, in group 4 the representative value of RA of the MIPEs is located outside the upper control line, and although it seems that the values are close to the mean, only five of them are above this central line, group 11, 14, 18, 20 and 24. This financial ratio has less influence of the business characteristics, however, the correlation coefficient for the variable ROA was 0.49.
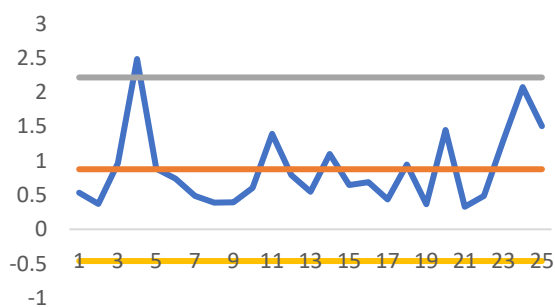
Box 3

Figure 3

Control chart X mean ROA

Source: Own Elaboration

Figure 4 shows that the range of values of the companies in groups 4 and 24 is much wider than in the other groups, and this study does not identify the reasons for their behaviour that might or might not make the results of the companies non-comparable.
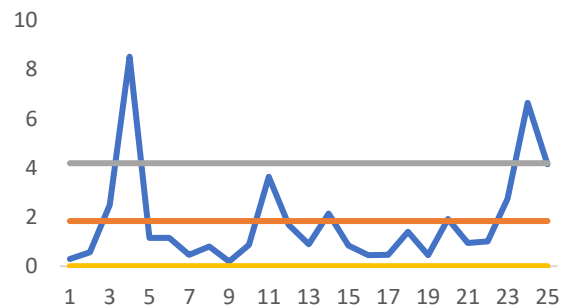
Box 4

Figure 4

Control chart ROA ranges

Source: Own Elaboration

In the case of ROI, it presents a behaviour similar to those obtained in the previous variable. Figure 5 shows that the average X value of group 4 has an exceptional behaviour, being located outside the upper limit, suggesting that this financial ratio may be influenced by conditions not identified in the study. Another important observation is that the representative average of 19 groups of MSMEs achieve ROIs below the median line. The correlation coefficient of the ROI ratio was 0.36, suggesting moderate acceptance of the influence of other business factors.
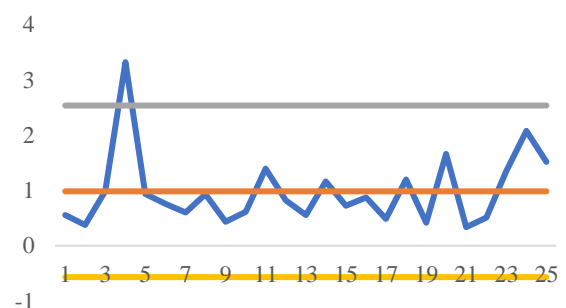
Box 5

Figure 5

Control chart X average ROI

Source: Own Elaboration

In figure 6, the range control chart of this financial ratio clearly shows the bias of groups 4 and 24 over the remaining 20 groups that remained below the mean, and the reasons for this behaviour could not be identified in this study

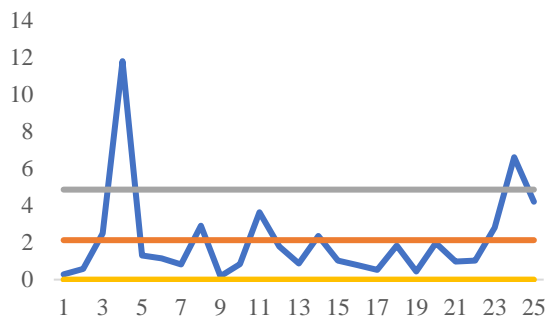Alcocer-Martínez, Fidel Ramón. Financial Analysis in Micro and Small Businesses: Business features and their influence on financial ratios. Journal of Administration and Finance. 11[28]1-5: e31128105.
DOI: https://doi.org/10.35429/JAF.2024.11.28.3.1.5

Box 6

Figure 6

Control chart ROI ranges

Source: Own Elaboration

The MN ratio shows the net profit obtained on sales, and as can be seen in figure 7, it is far from the share of invested capital or assets in turnaround. The behaviour of the representative values of the groups is heterogeneous, with 13 maintaining margins above the average and the remaining 12 below the central line. The correlation coefficient for this ratio was -0.0.
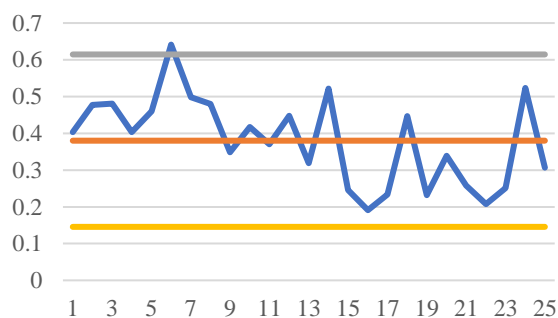
Box 7

Figure 7

Control chart X mean of MN

Source: Own Elaboration

The more distributed results support the representativeness of the central line as a characteriser of the companies analysed. As can be seen in Figure 8, the MN observed in each of the groups of MSMEs falls within the control limits, where the number of groups above the mean is similar to those below the mean.
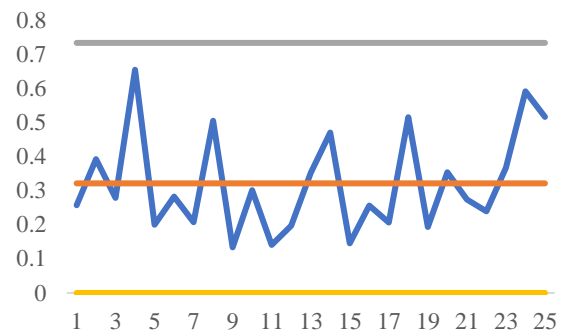
Box 8

Figure 8

Control chart MN ranges

Source: Own Elaboration

Conclusions

As a result of the application of the control charts to the financial ratios representative of the profitability analysis of the financial statements, through the application of the X-R control charts on net profit, return on assets, return on equity and net margin, the following could be observed: Net profit, presented a behaviour related to the sales volume of each business, so that those companies with lower sales, clearly differed from those with higher sales, revealing that it is an indicator influenced by other characteristics of the companies not allowing to be used for the comparison of their financial results.

In the case of the financial ratios ROA and ROI, they showed a similar behaviour between them, and although they allow to represent to a certain degree the results of the companies, they showed a certain degree of acceptance of influence by the resources involved or invested in the company. These indicators could be used in companies with comparable or similar amounts of assets or capital.

Finally, with the results obtained in the X-R control charts, the financial ratio of Net Margin, of the variable MN, obtained the lowest correlation coefficient, positioning it as the financial indicator with the greatest independence from other business factors, making it a useful tool for comparing the profits obtained by operations in relation to other companies, regardless of features such as business size, assets or capital invested by shareholders.

Limitations

The application of the analysis was performed on MSMEs that provided financial information they had prior to the pandemic, and considered companies in the tertiary or commercial sector, so it would be advisable to apply the present study to companies in the primary and secondary sectors in order to compare the results obtained here.

The study only included financial ratios from the profitability segment of the company, so the analysis of ratios related to leverage, coverage, liquidity and operating efficiency can complement the results obtained here.

Disclosures

Conflict of interest

The authors declare that they have no conflicts of interest. They have no known competing financial interests or personal relationships that might have appeared to influence the article reported in this paper.

Availability of data and materials

Spreadsheet files used for data concentration and analysis are available upon request to the author.

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Abreviaturas

MIP	Micro and Small Enterprises
MN	Net Margin
ROA	Return on Assets
ROI	Return on Investment
UN	Net Profit

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Basics

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