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Research Article

Procyclical and countercyclical strategies in MSMEs performance in a crisis context: A study based on the COVID-19 pandemic

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Abstract

Objective: To investigate the impact of procyclical and countercyclical strategies on the performance of MSMEs in the context of the Covid-19 crisis. **Methodology/approach**: Quantitative sample, with 118 micro, small, and medium-sized companies in Minas Gerais, Brazil. Spearman's correlation analysis and multiple linear regression analysis were used. **Main Results**: In the period dominated by the pandemic (2020/2021), countercyclical strategies performed better than procyclical strategies. **Theoretical/methodological contributions**: Although the literature explores procyclical strategies, studies that associate the influence of procyclical and countercyclical strategies with organizational performance still need to be made available. This gap is even more evident when MSMEs in crisis contexts are considered. By associating still new dimensions, such as HR, marketing, and production, among others, this article helps to fill gaps associated with, even today, a lack of work that seeks integrated models capable of better understanding the impact that crises, such as COVID-19. **Relevance/Originality**: The article innovates by associating, in the context of the literature on the crisis, the two types of strategies (countercyclical and procyclical) in the elaboration and testing of an integrated analytical model composed of different variables, and capable of being used not only in new research as well as in the business context. **Social/management contributions**: By demonstrating that cuts in investments in marketing and other areas produce adverse effects on performance and that organizations benefit by keeping employees instead of firing them, this study sheds light on the relevance of countercyclical strategies, which still need to be explored.

Keywords: Crisis. Performance. Small business. Covid-19.

Estratégias procíclicas e anticíclicas no desempenho de PMEs em contexto de crise: Um estudo a partir da pandemia do COVID-19

Resumo

Objetivo: Investigar o impacto de estratégias procíclicas e anticíclicas no desempenho de MPMEs no contexto da crise de Covid-19. **Método/Abordagem**: quantitativo, amostral, com 118 micro, pequenas e médias empresas de Minas Gerais, Brasil. Utilizou-se o aporte de análise da correlação de spearman e análise de regressão linear múltipla. **Principais Resultados**: no período dominado pela pandemia (2020/2021), as estratégias anticíclicas apresentaram desempenho superior àquelas que utilizam estratégias procíclicas. **Contribuições teóricas/metodológicas**: Embora a literatura explore as estratégias procíclicas, estudos que associam a influência de estratégias procíclicas e anticíclicas ao desempenho organizacional ainda são raros. Esta lacuna é ainda mais evidente quando são consideradas MPMEs em contextos de crise. Ao associar dimensões ainda novas, como recursos humanos, marketing e produção, entre outras, este artigo ajuda a preencher lacunas associadas, ainda hoje, à falta de trabalhos que busquem modelos integrados capazes de melhor compreender o impacto das crises, como o COVID-19. **Relevância/Originalidade**: o artigo inova ao associar, no contexto da literatura sobre crise, os dois tipos de estratégias (anticíclica e procíclica), na elaboração e teste de um modelo analítico integrado, composto de diferentes variáveis, e passível de ser utilizado não apenas em novas pesquisas como, também, no contexto empresarial. **Contribuições sociais/de gestão**: ao demonstrar que cortes de investimentos em marketing e outras áreas produzem efeitos adversos no desempenho, e que as organizações se beneficiam ao manter funcionários em vez de demiti-los, este estudo lança luz sobre a relevância de estratégias anticíclicas, que ainda precisam ser mais bem exploradas.

Palavras-chave: Crise. Desempenho. Pequena e Média Empresa. COVID-19.

INTRODUCTION

The economic repercussions of the crisis triggered by the COVID-19 pandemic have been unprecedented in the last two centuries. In a very short time, virtually all countries were forced to adopt emergency health measures and mobility restrictions, which significantly impacted the daily lives of companies. At the same time, different governments were forced to adopt public policies of a heterodox nature aimed at maintaining employment and income levels and stimulating productive initiatives. Companies, in turn, in addition to being forced to quickly empty physical workspaces, began to face new challenges caused, for example, by interruptions and compromises in logistics and supply chains.

We live in a world in crisis, with profound repercussions on business life. From an organizational perspective, the crisis would be "a sudden and unexpected event that threatens to disrupt an organization's operations and poses both a financial and a reputational threat" (Coombs & Holladay, 2010, p. 163). Scenarios of this type tend to induce companies to adopt procyclical strategies involving reducing operations and cutting costs and investments (Tellis & Tellis, 2009). However, other organizations can see, precisely in times of crisis, good opportunities, such as lower investment costs. Strategies in this direction are called countercyclical (Navarro et al., 2010).

The literature has extensively explored procyclical strategies (Kaszowska-Mojsa, 2020; Larson & Vieregger, 2021). However, studies that associate the influence of procyclical and countercyclical strategies with organizational performance are still rare (Conti et al., 2015). However, studies that associate the influence of procyclical and countercyclical strategies with organizational performance are still rare (Herbane, 2019), in small and medium-sized companies (SMEs), in turn, such research is practically unexplored.

A better understanding of this context is fundamental. Indeed, around 98% of companies in Brazil are micro and small, "more susceptible to market fluctuations and the fragile economic situation, exposing them to risk situations" (Nassif et al., 2020, p. 3). The lack of studies on procyclical and countercyclical strategies is even more evident when considering their adoption in crisis contexts. Searching for articles by title, abstract, and keywords in Scopus and Web of Science, no papers were found that sought to understand the impact of adopting both strategies on the performance of small and medium-sized companies in the face of the Covid-19 crisis. This article, seeking to fill part of the research gaps, proposes to answer the following question:

> *RQ1: What is the impact of procyclical and countercyclical strategies on the performance of small and medium-sized companies in Minas Gerais in the last 24 months (between 2019 and 2020)?*

The sample consisted of 118 micro, small, and medium-sized companies in Minas Gerais, Brazil, which allows extrapolation of the results to the universe of interest. The base literature on procyclical and countercyclical strategies supported the reflections. While studies that associate both strategies limit the categories of analysis to marketing, R&D, or capital expenditures (Navarro et al., 2010),), this article associates eight categories to the empirical analysis of the study: i) recruitment; ii) production; iii) purchases; iv) marketing; v) prices; vi) innovation; vii) credit policy; and viii) investments. In doing so, it allows for essential contributions. In theory, it responds to recent calls that highlight the need for more research on organizational performance in times of crisis (Chabossou et al., 2021; Martínez Serna & García Guerra, 2021; Nyikos et al., 2021; Rababah et al., 2020). In addition, expanding the categories of analysis allows for a more integrated understanding of coping strategies. From a practical-political point of view, this article allows entrepreneurs and public policymakers to learn about the best strategies to be adopted in pandemic contexts. Furthermore, the regression model presented here can be helpful for managers to calibrate their strategies, prioritizing the factors with the most significant impact on organizational performance.

THEORETICAL FOUNDATION

Identification and management of organizational crises in small and medium-sized enterprises

In general, organizational crises have four characteristics: i) sources of uncertainty, interruption, and change (Bundy & Pfarrer, 2015); ii) harmful or threatening to organizations and their stakeholders, many of whom have conflicting needs and demands (Kahn et al., 2013); iii) behavioral phenomena, socially constructed by actors (Coombs & Holladay, 2010), and; iv) Part of more effective processes, instead of discrete events (Jaques, 2009). On the one hand, the literature suggests that small and medium-sized companies are more vulnerable to crisis events (Kurschus et al., 2015). IThis is because such companies often suffer financial losses, reductions in sales volume, inability to fulfill contract terms, cash deficits, and even business closures (Arellano & Mendoza, 2019; Doern, 2016; Wille et al., 2017).

On the other hand, due to the smaller size and level of bureaucracy, authors point out how SMEs can have advantages in terms of flexibility, learning capacity, and innovation, among others (Bonatto et al., 2020; Cantele & Zardini, 2018; Chawinga & Chipeta, 2017). The literature suggests different strategies for overcoming crises, such as innovation in product planning, alliances with suppliers, information management, and adaptation of their business models (Crick & Crick, 2020; Liu et al., 2017; Okoli & Watt, 2018).

Crisis coping strategies

The literature on coping with crises is part of two fundamental perspectives. The first is internal, and the second is external (Bundy & Pfarrer, 2015). The first focuses on dynamics from within the organization. It concerns risk management, complexity, and technology (Borisova et al., 2019; Gephart Jr. et al., 2009; Kiselitsa & Shilova, 2016). In this perspective, management involves the design of organizational structures to prevent the occurrence, reduce the impact, and promote learning from the crisis. The second focuses on organizations' interactions with external actors. It considers that crisis management involves coordinating with stakeholders to prevent, resolve, and exit crises (Conti et al., 2015; Kaszowska-Mojsa, 2020; Larson & Vieregger, 2021; McClelland & Rust, 2018).

Procyclical and countercyclical strategies in crisis contexts

Procyclical strategies follow the market trend (Casillas et al., 2019; Mann & Byun, 2017; Rico et al., 2021). Given the demand reduction, increased competition, and uncertainty, companies usually adopt such strategies amid crises. They aim at market survival and involve initiatives such as cutting costs (Bromiley et al., 2008; Casillas et al., 2019; Rico et al., 2021) and investments (Conti et al., 2015). In turn, countercyclical strategies involve, even in crisis contexts, the search for opportunities in a more offensive way. Latham and Braun (2011) have emphasized the positive relationship between countercyclical strategies and performance. Such strategies include maintaining or increasing investments, staffing, among others (Bromiley et al., 2008; Conti et al., 2015). The literature, which associates both strategies, usually limits the categories of analysis to marketing, R&D, or capital expenditures (Navarro et al., 2010). Innovatively, this article expands the categories to eight dimensions: i) recruitment; ii) production; iii) purchases; iv) marketing; v) prices; vi) innovation; vii) credit policy; and viii) investments.

The first dimension is recruitment, whose strategies are usually procyclical. While in periods of economic expansion, companies invest in hiring professionals, in times of recession, they usually try to stabilize themselves through initiatives such as employee layoffs (Latham & Braun, 2011). However, Piccarozzi et al. (2021) have emphasized how companies that adopt countercyclical recruitment strategies can benefit. By avoiding layoffs, such companies boost employee morale, for example. In this sense, instead of worrying about job security, these professionals focus on their tasks, maintaining and increasing productivity. In addition, companies can also benefit from hiring professionals with lower wages, given the greater availability of labor in recessionary periods (Hall, 2005).

The second dimension is related to production, with usually procyclical strategies. In periods of retraction, sales generally decrease, stimulating companies to reduce production to dispose of available stock (Zarnowitz, 1985). However, a countercyclical strategy of increasing production may be appropriate in such contexts. For example, to avoid the shortage of products, usually seen when the market recovers, companies can invest in production, seeking opportunities related to earning revenue and market share in the economic recovery (Bromiley et al., 2008). Furthermore, during recessions, companies can take advantage of lower labor and material costs (Conti et al., 2015).

The third dimension refers to purchases, which are also procyclical. As recessions reduce demand, companies use fewer inputs, some of which are eventually available in stock. In this sense, organizations reduce purchases to reduce storage costs (Apaydin, 2011).). However, increasing purchases (countercyclical strategy) during recessions allows companies to take advantage of lower prices and better supplier credit conditions (Conti et al., 2015). The fourth dimension is mainly associated with marketing, advertising, and promotion strategies. Characteristically procyclical, companies typically invest in advertising and promotions in market expansions, cutting them in periods of contraction (Apaydin, 2011; Srinivasan et al., 2011). Despite this, Ang et al. (2000) and Conti et al. (2015) advocate more aggressive advertising investment in times of crisis. This is because media companies offer more attractive rates, as most companies reduce investments of this kind. The authors point out that companies that advertise obtain the greatest return on their investments during periods of recession.

The fifth dimension is price. On the one hand, in crisis contexts, companies observe more significant pressure to reduce their prices, given the decrease in consumer purchasing power (Ang et al., 2000). Economic theory suggests that companies respond to reduced demand by lowering prices. However, marketing studies warn that such cuts can reduce the brand's value, hindering its long-term positioning (Latham & Braun, 2011). Furthermore, research demonstrates how consumers expect lower prices to continue after the economic recovery, reducing long-term revenues (Apaydin, 2011). Evidence shows companies do not change their prices in recessions (Geroski & Gregg, 1993), even raising them on certain occasions (Lamey et al., 2012).

The sixth dimension involves innovation. Pressured to control costs during recessions, companies often reduce research and development (R&D) programs, increasing short-term cash flow (Srinivasan et al., 2011). However, when they adopt countercyclical behavior, adding new features and updating their products, for example, such organizations can generate better performance by meeting new demand patterns in such contexts (Apaydin, 2011). In addition, companies can also take advantage of lower costs to achieve higher returns on their R&D investments. The penultimate dimension is related to credit policy. In recession contexts, due to lower profits, companies face cash flow challenges and reduced bank credit (Ivashina & Scharfstein, 2010). In such scenarios, it is common for customers to request flexibility in payment terms (Ang et al., 2000). In order to maintain sales, companies usually succumb to the pressures, expanding their credits. However, they can monitor their customers' performance (countercyclical strategy), adjusting credit or collections depending on conditions (Sibony et al., 2009).

The last dimension is that of investments, restricted in recessive periods. Latham and Braun (2011) emphasize how companies sell assets to stabilize their finances in such scenarios (procyclical). If, on the one hand, this pattern can lead to overinvestments with consequent excess production capacity during the recovery, it can, in turn, imply the need for exaggerated cuts during recessions (Apaydin, 2011). On the other hand, companies that take advantage of lower prices during recessions to invest in fixed assets, for example, can guarantee adequate capacity and modern equipment. Such a strategy helps organizations offer superior products and gain market share in the recession and its subsequent recovery (Bromiley et al., 2008). Table 1 presents a summary of the dimensions of interest and the pro and anti-cyclical initiatives:

Table 1

Dimensions of interests and their pro and counter-cyclical strategies

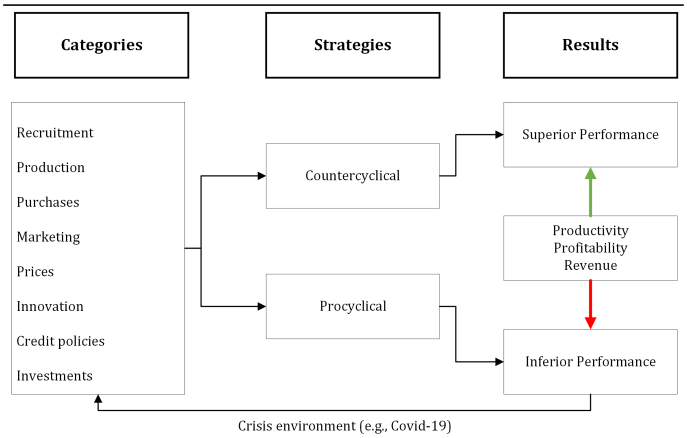
Dimension	Strategy	
	Procyclical	**Countercyclical**
Recruitment	Employee layoffs.	Avoid dismissals, stimulating morale.
Production	Reduced production.	Hiring professionals with lower wages.
Purchases	Reduction of purchases using available stock.	Lower costs.
Marketing	Reduction of investment in publicity and advertising.	Invest in production, taking advantage of economic recovery gains.
Prices	Price reduction, aiming to maintain the sales level.	Increase in purchases, taking advantage of better credit and credit terms.
Innovation	Reduction of investment in R&D.	More aggressive investment, aiming to take advantage of lower costs.
Credit	Expansion of credit by companies.	Maintaining or raising prices to avoid a brand positioning or value drop.
Investment	Fall in investments.	Investments in new features and product upgrades, targeting superior performance by meeting emerging standards.

Note: Elaborated by the authors.

The literature generally supports that countercyclical strategies related to the dimensions of interest here (Recruitment, Production, Purchases, Marketing, Prices, Innovation, Credit, and Investment) are associated with superior performance. According to Lopes and Carvalho (2021), "results regarding organizational performance are associated with technical evolution, innovation and the quality of human, structural and relational factors". For this work, the performance of micro and small-sized companies will be considered based on their productivity, profitability, and billing (Sá & Amorim, 2018). Analogously, it is assumed that procyclical would be associated with lower performanc. Figure 1 illustrates the conceptual model of this study.

Figure 1

Conceptual model



Note: Elaborated by the authors.

METODOLOGIA

Demographic profile and sampling design

The research universe involves micro, small, and medium-sized enterprises (MSMEs) in Minas Gerais, Brazil. The population of MSMEs in Minas Gerais is 1,914,064, of which 1,775,694 are micro-enterprises, 63,610 are small-sized companies, and 74,760 are medium-sized companies (Sebrae, 2020). The sample was stratified by size within each stratum; the selection was made by simple random sampling, calculated considering a 90% confidence interval, with an error margin of 8%, resulting in a total of 118 companies (Cochran, 1977).

Questionnaire

The research allowed the elaboration of a collection instrument with 20 structured questions derived from the conceptual model. Two blocks were part of the questionnaire. In the first, the questions were related to the characteristics of the companies. In the second, the questions aimed at information on how the Covid-19 crisis impacted companies, according to the eight thematic dimensions of interest. The statements were based on the literature on crisis management and coping strategies for content validation. Following Perrien et al. (1984), the researchers initially used a representative number of closed-question options to cover the answers. In addition, questions strictly related to the research topic were applied. The implications of the questions were considered in the tabulation and data analysis procedures.

Pre-test

The pre-test considered clarity and precision of terms, number of questions, form, order, and introduction (Gil, 2002). Telephone interviews conducted with 15 entrepreneurs operationalized the pre-test. The number of respondents met the criteria suggested for the stage (Malhotra, 2011). The procedure served to evaluate the electronic platform in terms of public acceptance and assess the respondents' understanding of the statements.

Data collection

The companies were contacted through an online platform, operationalized by sending e-mails and a telephone survey. The structured interviews took place between February and May 2021. It is noteworthy that confidentiality was maintained. Free and informed consent was established in the register on the virtual platform used in the study. A team of experienced professionals carried out the collection: three researchers, one coordinator-supervisor, and two technicians. We carried out the following practices to verify the quality of data collection: i) audit of transcripts of electronic forms; ii) call the interviewees to confirm information; and iii) assessment of full completion of the forms, as recorded in the electronic research system.

Nonresponse and common method bias

In order to verify the occurrence of common method bias, the single-factor Harman test was performed (Podsakoff et al., 2003). When the explained variance of the factor analysis does not exceed 50%, the common method used in data collection does not deserve concern (Podsakoff et al., 2003). Using the SPSS® v.25 software, the principal components extraction method and the unrotated factorial solution were adopted. The result showed a variance of 35.87%; therefore, no significant evidence of common method bias was found.

Measuring instruments

The reliability of the scales was performed using Cronbach's Alpha Coefficient (α) (Malhotra, 2011). Landis and Koch (1977) establish that the internal consistency of the scales is acceptable at values above 0.61. In this research, the coefficient obtained was 0.724. In addition, we assessed the existence of missing data, suspicious response patterns, outliers, and linear response patterns (straight lining), which may indicate acquiescence bias (Podsakoff et al., 2003). To verify outliers, the univariate analysis admitted values greater than four standard deviations as a reference for characterizing an atypical observation (Hair et al., 2013). The researchers developed indices to measure countercyclical or procyclical strategies, making it possible to verify the initiatives to face the crisis implemented by companies. These indices were operationalized through questions on a Likert scale. The questions were grouped into nine key categories, including performance (Table 2).

The questions mentioned above, grouped in the mentioned categories, are made up of specific questions for each element of interest; for example, the performance category made up of question P1 (indicate how the current COVID-19 crisis has impacted the following indicators), has an intensity check at the levels: 1.1) productivity, 1.2) profitability and 1.3) billing, using a scale that varies between negative and positive impact. The other questions were also elaborated on using intensity scales.

The researchers conducted normality and correlation tests between each category and the performance variable, verifying statistical significance. Afterward, multiple linear regression analysis associated with the t-test was performed. The objective was to verify whether the variables of interest explain the variations in performance to obtain the equation for the model. In this sense, we propose hypothesis H1:

> *H1: Companies that practice countercyclical strategies for each category perform better than companies that practice procyclical strategies during the COVID-19 crisis.*

Table 2

Questions according to variables of interest

Categories	Questions
I1. Performance	Q1. Indicate how the current COVID-19 crisis has impacted the following indicators: a) productivity, b) profitability, and c) revenue.
I2. Recruitment	Q2. The number of employees increased (a) or decreased (b) after COVID-19.
	Q3. Impact of the crisis on the degree of employee satisfaction.
	Q4. Impact of the crisis on absenteeism.
I3. Production	Q5. Productivity increased during the crisis.
	Q6. Quality scores increased during the crisis.
I4. Purchases	Q7. Our suppliers have extended payment terms.
	Q8. Changes or improvements were made to purchases and/or supplies.
I5. Marketing	Q9. Changes or improvements were made to the commercial segment and/or sales.
	Q10. Product/service offerings have been modified to serve new customers.
I6. Prices	Q11. We had to lower prices.
I7. Innovation	Q12. Changes or improvements were made to existing products/services.
	Q13. Changes or improvements were made to production processes.
	Q14. Organizational and/or management changes or improvements were made.
	Q15. New products/services were launched.
I8. Credit	Q16. Our customers' payment terms have become longer.
I9. Investments	Q17. We carry out planned investments.
	Q18. We purchased new production equipment.

Note: Elaborated by the authors.

Data analysis

The analysis was multidimensional data (Hair et al., 2013). The data provided by the questionnaire were grouped according to analysis categories and based on questions structured on a Likert scale. We analyzed the aggregated results statistically, as the total response is not entirely proportional to the population. The statistical tests and contrasts carried out in the subsequent phases of the analysis had levels of significance or degrees of precision determined from the data effectively obtained in the research, that is, disregarding "absent" answers and according to the statistical techniques used and the established level of aggregation in each situation.

RESULTS

Of the entrepreneurs, 75.2% are men, 24.8% are women, and 51.3% are microenterprises (Padovez-Cualheta et al., 2019). In addition, 75.2% have higher education. Regarding the period of operation, 47% are less than five years old, 66.4% are less than ten years, and 79.2% are less than 20 years. Table 3 shows the composition of the sample.

Table 3

Sample

	No. of Companie	
	n	%
Economic Sector		100.0
Industry	25	21.4
Construction	7	6.0
Sales	8	6.8
Services	58	49.6
Others	19	16.2
Size		100.0
Micro-sized enterprise	59	51.3
Small-sized enterprise	29	25.2
Medium-sized enterprise	27	23.5

Note: Elaborated by the authors based on the research data.

The Shapiro-Wilk test was performed from the data for sample normality, obtaining a p-value<0.05. Spearman's correlation was used based on the sample size, obtaining data described in Table 4.

Table 4

Spearman correlation for the variables of interest

	Performance		
	n	Correlation coefficient	Sig. (2-tailed)
Production (Counter-cyclical)	112	.507**	0.000
Investments (Counter-cyclical)	111	.391**	0.000
Price Strategy (Pro-cyclical)	111	-.196*	0.039
Credit Policy (Pro-cyclical)	110	-.035	0.716
HR (Counter-cyclical)	110	.614**	0.000
Innovation (Counter-cyclical)	112	.422**	0.000
Purchases (Counter-cyclical)	111	.386**	0.000
Marketing (Counter-cyclical)	111	.524**	0.000

Note: ** The correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed). Research data. Elaborated by the authors based on the research data.

There is a positive correlation between performance and dimensions of countercyclical strategies and a negative correlation between performance and procyclical ones. The categories with the highest correlation (closer to 1) are countercyclical human resources, marketing, and production. The countercyclical strategy of maintaining prices was positive, along with the credit policy. For the correlation analysis, the classification proposed by Cohen (2013), was adopted, in which values below 0.30 are considered small; between 0.30 and 0.49, moderate; and equal to 0.50, large. The method of multiple linear regression was used to verify whether the categorical variables predict oscillations in performance, obtaining a mathematical model of this relationship. The model's output variable (dependent) was performance, and the predictor variables (independent) were recruitment, production, purchases, marketing, prices, credit policies, and investments. Table 5 presents the forward method, in which each variable was inserted in turn. The model with all variables had a higher adjusted R^2 of 0.642 and R of 0.818, indicating its ability to explain 64% of variations in performance; the better, the closer the R is to 1.

Table 5

Model summary

R	R^2	Adjusted R^2	St. Error of the Estimate				
.818	.669	.642	.6739				
Change statistics							Durbin-Watson
R^2 Change	F Change	df1	df2	Sig. F Change			
.016	4.728	1	99	.032			1.714

Note: Elaborated by the authors based on the research data.

When submitting the model to the ANOVA test (Table 6), observa-se p-valor<0,05, indicando ajuste diferente de modelo sem nenhum previsor; tal resultado levou à conclusão que inclusão de categorias analíticas melhoram o modelo.

Table 6

Anova

	Sum of Squares	df	Mean Squares	Z	Sig.
Regression	90.681	8	11.335	24.962	.000
Residual	44.956	99	.454		
Total	135.637	107			

Note: Elaborated by the authors based on the research data.

The analysis resulted in a statistically significant model [F(8.99)=24.962; p<0.001; R^2=0.669]. However, when checking the t-test for each variable, it was observed that the results varied for each category. Some categories presented p-value>0.05, not rejecting the null hypothesis that the components were randomly generated. In this sense, a new model excluding such variables was processed, keeping only those related to production, price, HR, marketing, and investments. When subjected to multiple regression, we found a higher adjusted R^2 of 0.634 and R of 0.807, explaining about 65.1% of the variance in performance (Table 7).

Table 7

Final model summary

R	R^2	Adjusted R^2	St. Error of the Estimate	Durbin-Watson
.807	0.651	0.634	0.6784	1.815

Note: Elaborated by the authors based on the research data.

When submitting the model to the ANOVA test, the p-value<0.05 indicates validity as a predictor (Table 8).

Table 8

Final model ANOVA

Model	Sum of Squares	df	Mean Squares	Z	Sig.
Regression	88.277	5	17.655	24.962	.000
Residual	47.406	103	.460		
Total	135.683	108			

Note: Dependent variable: Performance. Predictors: (Constant), Price, HR, Marketing, Production, Investments. Elaborated by the authors based on the research data.

The authors also verified collinearity statistics (Table 9). We sought to observe whether the tolerance values for each category were more significant than 0.1 and the VIF values less than 9, characterizing the absence of multicollinearity. Regarding the residuals, we identified the existence of outliers.

The production strategies (β=0.181; t=2.738; p<0.05); recruitment (β=0.405; t=6.148; p<0.05); marketing (β=0.344; t=5.482; p<0.05); prices (β=-0.244; t=-4.077; p<0.05), and investment (β=0.181; t=2.917; p<0.05) are performance predictors. The model equation is given by y=0.343 + 0.214(Production) -0.180(Price) + 0.480(RH) + 0.214(Marketing) + 0.154(Investment). Thus, despite the positive correlation between countercyclical strategies and performance and a negative one between procyclical strategies and performance (Table 4), at a statistical significance level of 0.05, only the production variable (countercyclical), HR (countercyclical), marketing (countercyclical), prices (procyclical), and investment (countercyclical) are performance predictors and procyclical pricing strategies negatively interfere with it.

Discussion

This study investigated the dimensions of recruitment, production, purchases, marketing, prices, innovation, credit, and investments, starting from the hypothesis that countercyclical strategies perform better in times of crisis (Bromiley et al., 2008; Conti et al., 2015). In recruitment, it was found that companies that avoided layoffs (Hall, 2005; Piccarozzi et al., 2021) performed better (ρ=0.614 and p-value<0.01). In addition, the more companies invested in employee satisfaction, taking advantage of available labor, the more outstanding the performance (β=0.405; t=6.148; p<0.05). Spearman's correlation tests and t-test results confirmed the hypothesis that the countercyclical recruitment strategy performs better (Bromiley et al., 2008; Conti et al., 2015).

Table 9

Coefficients

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity test	
	B	Error	Beta			Lower bound	Upper bound	Tolerance	VIF
(Constant)	0.343	0.316		1.087	0.279	-0.283	0.969		
Production Strategy	0.214	0.078	0.181	2.738	0.007	0.059	0.369	0.774	1.292
Price Strategy	-0.180	0.044	-0.244	-4.077	0.000	-0.268	-0.092	0.950	1.052
HR Strategy	0.480	0.078	0.405	6.148	0.000	0.325	0.635	0.781	1.281
Marketing Strategy	0.214	0.039	0.344	5.482	0.000	0.136	0.291	0.864	1.158
Investment Strategy	0.154	0.053	0.181	2.917	0.004	0.049	0.258	0.881	1.135

Note: Dependent variable: Performance. Elaborated by the authors based on the research data.

Countercyclical production strategies also showed a positive correlation with performance (0.507) and significance at the 0.01 level (β=0.181; t=2.738; p<0.05) (Bromiley et al., 2008). When verifying whether companies increase purchases, taking advantage of the favorable conditions of their suppliers (Conti et al., 2015), a positive correlation with performance (0.386) is observed. However, the t-test showed significance above 0.05, concluding that the countercyclical purchasing strategy does not predict superior performance. Concerning countercyclical marketing strategies, maintaining and investing more aggressively in advertising and promotion initiatives are positively associated with performance (0.524, p-value<0.01) (Ang et al., 2000; Conti et al., 2015). The t-test showed significantly lower than 0.05, indicating performance prediction (β=0.344; t=5.482; p<0.05).

The correlation between procyclical pricing strategy and performance was negative (-.0196, at a significance level of 0.05). Although the intention to lower prices seeks to increase sales (Ang et al., 2000), such a strategy is associated with lower performance. Data suggest the possibility of depreciation of the company's positioning in the long term (Latham & Braun, 2011). In other words, the lesser the use of the price reduction strategy (procyclical), the greater the performance will tend to be (β=-0.244; t=-4.077; p<0.05). As for innovation, the countercyclical strategy presents a positive correlation (0.422, significance level of 0.01). However, the t-test showed a p-value greater than 0.05, denoting a non-prediction of performance. Concerning credit policy, the procyclical strategy of extending customers' payment conditions (Ang et al., 2000), common in times of crisis, showed a negative correlation (-0.035). The t-test also showed no prediction (p>0.05). This result indicates that extending payment terms (procyclical strategy) does not present significant differences in performance. Finally, the countercyclical investment strategy (Bromiley et al., 2008) showed a positive correlation (0.391, significance level of 0.01), indicating that the more significant its use, the greater the performance (β=0.181; t=2.917; p<0.05).

The study results align with recent studies on strategies used by companies during the pandemic. Wenzel et al. (2020) suggest that perseverance and innovation strategies are more effective than cost containment and investment strategies. In this direction, Klyver and Nielsen (2021), when analyzing the performance of Danish SMEs, realized that containment strategies are less effective than containment and innovation strategies. Nevertheless, Kuckertz et al. (2020), Ma and Zhang (2022) and Kusa et al. (2022), reinforce the need for a quick and resilient posture in times of crisis, and Eggers (2020) for innovation and strategic orientation, to the detriment of everyday strategies of coping.

CONCLUSIONS

Theoretical and methodological implications

This study presents essential contributions. By associating still new dimensions, such as HR, marketing, and production, among others, this article helps to fill gaps associated with, even today, a lack of work that seeks integrated models capable of better understanding the impact that crises, such as COVID-19, generated in business management involving specific areas (Piccarozzi et al., 2021). Indeed, by expanding the analysis beyond the traditional categories of marketing, R&D, capital expenditures (Navarro et al., 2010), billing, and capital (Conti et al., 2015), this article allows for a more integrated understanding of the variables that impact business performance.

Practical implications

Initially, this article emphasizes the importance of MSMEs' better understanding of different crisis coping strategies. The proposal of a model that integrates several variables, such as those proposed here, can help them in this direction. Indeed, knowledge of these strategies and their relationship with organizational performance can help managers formulate initiatives that allow superior performance even in crises. Furthermore, by demonstrating that cuts in investments in marketing and other areas produce adverse effects on performance and that organizations benefit by keeping employees instead of firing them, this study sheds light on the relevance of countercyclical strategies, which still need to be explored. Finally, the regression model proposed here can be a valuable tool for managers to calibrate their initiatives to face the crisis, prioritizing factors of greater productivity in performance.

Implications for public policies

As mentioned, different governments began to adopt less restrictive or orthodox economic policies associated with maintaining minimum income levels for the population and support for the productive sector. In line with such policies and considering possible benefits arising from adopting countercyclical strategies, development agents could create mechanisms to encourage the adoption of strategies of this type (whether for investment, job creation, etc.) in companies in critical sectors. The results benefit the company and, consequently, the productive sector as a whole.

Limitations

This study has limitations. The first is related to the cross-sectional analysis of performance. The study addresses the immediate returns of the countercyclical and procyclical strategies investigated here. However, some strategies may have a long-term effect, which can be better observed in a time horizon longer than that understood in this work. Another limitation is presumed causality. It was hypothesized that countercyclical strategies promote superior performance. However, reverse causality cannot be ruled out. That is, superior performance may have influenced the choice of countercyclical strategy. Thus, this study confirms the association between the variables, not their causality.

Suggestions for future research

New research could investigate the influence of entrepreneurs' cultural characteristics on the choice of countercyclical investments during recessions. In addition, some variables, such as countercyclical innovation strategies, countercyclical purchases, and procyclical credit policy, did not predict performance, representing research opportunities. To that extent, such strategies appear to have resulted in long-term horizons; longitudinal studies are shown to be necessary (Hair & Fávero, 2019).

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Conflit of interest statement

The authors declare that there is no conflict of interest.

Authors' statement of individual contributions

Roles	Contributions		
	Ferreira W.S.S.	Vale G.M.V.	Andrade N.A.
Conceptualization	■	■	■
Methodology	■	■	
Software	■		
Validation	■	■	■
Formal analysis	■	■	■
Investigation	■	■	■
Resources	■	■	■
Data Curation	■		
Writing - Original Draf	■		
Writing - Review & Editing	■	■	■
Visualization	■	■	■
Supervision	■	■	
Project administration	■		
Funding acquisition	■	■	■

REFERENCES

Ang, S. H., Leong, S. M., & Kotler, P. (2000). The Asian Apocalypse: Crisis Marketing for Consumers and Businesses. Long Range Planning, 33(1), 97–119. https://doi.org/10.1016/S0024-6301(99)00100-4

Apaydin, F. (2011). Changes in Marketing Strategies and Performance Outcomes of Turkish Firms in 2008 Global Economic Recession. International Business Research, 4(4), 104–114. https://doi:10.5539/ibr.v4n4p104

Arellano, C., & Mendoza, E. G. (2019). Credit frictions and 'sudden stops' in small open economies: An equilibrium business cycle framework for emerging markets crises. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.1807610.

Bonatto, F., de Resende, L.M.M., & Pontes, J. (2020), Relational governance in supply chain: a systematic literature review. Benchmarking, 27(6), 1711–1741. https://doi.org/ 10.1108/BIJ-01-2019-0033

Borisova, V. V, Panfilova, E. E., Zhukov, P. V, Matulis, S. N., Matveev, V. V., & Teymurova, V. E. (2019), Information support in the enterprise risk management. International Journal of Management and Business Research, 9(1), 158–169.

Bromiley, P., Navarro, P., & Sottile, P. (2008). Strategic business cycle management and organizational performance: A great unexplored research stream. Strategic Organization, 6(2), 207–219. https://doi.org/10.1177/1476127008090011

Bundy, J., & Pfarrer, M. D. (2015). A burden of responsibility: The role of social approval at the onset of a crisis. Academy of Management Review, 40(3), 345–369. https://doi.org/10.5465/amr.2013.0027

Cantele, S., & Zardini, A. (2018). Is sustainability a competitive advantage for small businesses? An empirical analysis of possible mediators in the sustainability–financial performance relationship. Journal of Cleaner Production, 182, 166–176. https://doi.org/10.1016/j.jclepro.2018.02.016

Casillas, J. C., Moreno-Menéndez, A.M., Barbero, J. L., & Clinton, E. (2019). Retrenchment Strategies and Family Involvement: The Role of Survival Risk. Family Business Review, 32 (1), 58–75. https://doi.org/10.1177/0894486518794605

Chabossou, A. F. C., Nonvide, G. M. A., Lokonon, B. O. K., Amegnaglo, C. J., & Akpo, L. G. (2021). COVID-19 and the Performance of Exporting Companies in Benin. European Journal of Development Research, 34(2):828-842. https://doi.org/10.1057/s41287-021-00395-z.

Chawinga, W. D., & Chipeta, G. T. (2017). A synergy of knowledge management and competitive intelligence: A key for competitive advantage in small and medium business enterprises. Business Information Review, 34(1), 25–36. https://doi.org/10.1504/IJBIS.2020.10025102

Cochran, W. G. (1977). Sampling Techniques, 3rd edn. Wiley. New York.

Cohen, J. (2013). Statistical Power Analysis for the Behavioral Sciences, Academic Press. https://doi.org/10.1016/C2013-0-10517-X

Conti, C. R., Goldszmidt, R., & de Vasconcelos, F. C. (2015). Strategies for superior performance in recessions: Pro or counter-cyclical? RAE Revista de Administração de Empresas, 55(3), 273–289. https://doi.org/10.1590/S0034-759020150304

Coombs, W. T., & Holladay, S. J. (2010). The Handbook of Crisis Communication. Wiley-Blackwell. https://doi.org/10.1002/9781444314885.

Crick, J. M., & Crick, D. (2020). Coopetition and COVID-19: Collaborative business-to-business marketing strategies in a pandemic crisis. Industrial Marketing Management, 88, 206–213. https://doi.org/10.1016/j.indmarman.2020.05.016

Doern, R. (2016). Entrepreneurship and crisis management: The experiences of small businesses during the London 2011 riots. International Small Business Journal: Researching Entrepreneurship, 34(3), 276–302. https://doi.org/10.1177/0266242614553863

Eggers, F. (2020). Masters of disasters? Challenges and opportunities for SMEs in times of crisis. Journal of Business Research, 116, 199– 208. https://doi.org/10.1016/j.jbusres.2020.05.025

Ferreira, W., Vale, G. & Bernardes, P. (2021). Innovation, Ruptures and Economic Cycles in Technology Platforms: Proposition of an analytical framework.. Organizações & Sociedade, 28, 495-518. https://doi.org/10.1590/1984-92302021v28n9802pt.

Ferreira, W., Vale, G. & Corrêa, V. (2022). Diffusion of Innovation in Technological Platforms: The Uber Case. BAR - Brazilian Administration Review, 19. https://doi.org/10.1590/1807-7692bar2022210101.

Gephart Jr., R. P., Van Maanen, J., & Oberlechner, T. (2009). Organizations and risk in late modernity. Organization Studies, 30(2–3), 141–155. https://doi.org/10.1177/0170840608101474

Geroski, P., & Gregg, P. (1993). Coping the Recession. National Institute Economic Review, 146(1), 64–75. https://doi.org/10.1177/002795019314600105

Gil, A. C. (2002). Como Elaborar Projetos de Pesquisa, 4a., Atlas, São Paulo.

Hair, J., Hult, G. T. M., & Ringle, C. M. (2013), A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM), Sage Publications (CA), Newbury Park.

Hair, J. F., & Fávero, L. P. (2019). Multilevel modeling for longitudinal data: concepts and applications. RAUSP Management Journal, 54(4), 459–489. https://doi.org/10.1108/RAUSP-04-2019-0059

Hall, R. E. (2005). Employment fluctuations with equilibrium wage stickiness. American Economic Review, 95(1), 50–65. https://doi.org/10.1257/0002828053828482

Herbane, B. (2019). Rethinking organizational resilience and strategic renewal in SMEs. Entrepreneurship and Regional Development, 31(5–6), 476–495. https://doi.org/10.1080/08985626.2018.1541594

Ivashina, V., & Scharfstein, D. (2010). Bank lending during the financial crisis of 2008. Journal of Financial Economics, 97(3), 319–338. https://doi.org/10.1016/j.jfineco.2009.12.001

Jaques, T. (2009). Issue management as a post-crisis discipline: Identifying and responding to issue impacts beyond the crisis. Journal of Public Affairs, 9(1), 35–44. https://doi.org/10.1177/0149206316680030

Kahn, W. A., Barton, M. A., & Fellows, S. (2013). Organizational crises and the disturbance of relational systems. Academy of Management Review, 38(3), 377–396. https://doi.org/10.5465/amr.2011.0363

Kaszowska-Mojsa, J. (2020). Innovation strategies of manufacturing companies during expansions and slowdowns. Entrepreneurial Business and Economics Review, 8(4), 47–66. http:// doi.org/10.15678/EBER.2020.080403

Kiselitsa, E. P., & Shilova, N. N. (2016). Economic technology of enterprise risk management based on information support for their activity. Journal of Internet Banking and Commerce, 21(S3), 14.

Klyver, K., & Nielsen, S. L. (2021). Which crisis strategies are (expectedly) effective among SMEs during COVID-19? Journal of Business Venturing Insights, 16. https://doi.org/10.1016/j.jbvi.2021.e00273

Kuckertz A., Brändle L., Gaudig A., Hinderer S., Morales Reyes C. A., Prochotta A., Steinbrink K. M. , Berger E. S. C. (2020). Startups in times of crisis – A rapid response to the COVID-19 pandemic. Journal of Business Venturing Insights, 13. https://doi.org/10.1016/j.jbvi.2020.e00169.

Kurschus, R. J., Sarapovas, T., & Cvilikas, A. (2015). The criteria to identify company's crisis in SME sector. Engineering Economics, 26(2), 152–158. http://doi.org/10.5755/j01.ee.26.2.8779

Kusa, R., Duda, J., & Suder, M. (2022). How to sustain company growth in times of crisis: the mitigating role of entrepreneurial management. Journal of Business Research, 142, 377-386. https://doi.org/10.1016/j.jbusres.2021.12.081

Lamey, L., Deleersnyder, B., Steenkamp, J. E. B. M., & Dekimpe, M. G. (2012). The effect of business cycle fluctuations on private-label share: What has marketing conduct got to do with it? Journal of Marketing, 76(1), 1-19. https://doi.org/10.1509/jm.09.0320

Landis, J.R., & Koch, G. G. (1977). The measurement of observer agreement for categorical data. Biometrics, 33(1), 159–174. https://doi.org/10.2307/2529310

Larson, E. C., & Vieregger, C. (2021). The strategic dilemma of counter-cyclical capital investment. Global Business and Economics Review, 24(4), 317–343. https://doi.org/10.1504/GBER.2021.115802

Latham, S., & Braun, M. (2011). Economic recessions, strategy, and performance: a synthesis. Journal of Strategy and Management, 4(2), 96–115. https://doi.org/10.1108/17554251111128592

Liu, Y., Shankar, V., & Yun, W. (2017). Crisis management strategies and the long-term effects of product recalls on firm value. Journal of Marketing, 81(5), 30–48. https://doi.org/10.1509/jm.15.0535

Lopes, F.C., & Carvalho, L. (2021). Intangible assets and business performance in Latin America. RAUSP Management Journal, 56(4). https://doi.org/10.1108/rausp-02-2020-0024.

Ma, B., & Zhang, J. (2022). Tie strength, organizational resilience and enterprise crisis management: An empirical study in pandemic time. International Journal of Disaster Risk Reduction, 81(15). https://doi.org/10.1016/j.ijdrr.2022.103240.

Malhotra, N. K. (2011). Pesquisa de Marketing: Uma Orientação Aplicada, Bookman.

Mann, M., & Byun, S. E. (2017). To retrench or invest? Turnaround strategies during a recessionary time. Journal of Business Research, 80, 24–34. https://doi.org/10.1016/j.jbusres.2017.06.018

Martínez Serna, M. C., & García Guerra, A. (2021). Environmental hostility business in mexican exporting smes in the context of covid-19: Effect on the performance. Revista Venezolana de Gerencia, 26(5), 478–489. https://doi.org/10.52080/rvgluz.26.e5.31

McClelland, J., & Rust, J. (2018). Strategic Timing of Investment over the Business Cycle: Machine Replacement in the US Rental Industry. Jahrbucher Fur Nationalokonomie Und Statistik, 238(3–4), 295–351. https://doi.org/10.1515/jbnst-2018-0023

Nassif, V.M.J., Corrêa, V.S., & Rossetto, D.E. (2020). Estão os empreendedores e as pequenas empresas preparadas para as adversidades Contextuais? Uma reflexão a luz da pandemia do Covid-19", Revista de Empreendedorismo e Gestão de Pequenas Empresas, Vol. 9 No. 2, p. 1. https://orcid.org/0000-0003-3601-2831

Navarro, P., Bromiley, P., & Sottile, P. (2010). Business cycle management and firm performance: Tying the empirical knot. Journal of Strategy and Management, 3(1), 50–71. https://doi.org/10.20586/joms.10.1_1

Nyikos, G., Soha, B., & Beres, A. (2021). Entrepreneurial resilience and firm performance during the COVID-19 crisis - Evidence from Hungary. Regional Statistics, 11(3), 29–59. https://doi.org/10.15196/RS110307

Okoli, J., & Watt, J. (2018). Crisis decision-making: the overlap between intuitive and analytical strategies. Management Decision, 56(5), 1122–1134. https://doi.org/10.1108/MD-04-2017-0333

Padovez-Cualheta, L., Borges, C., Camargo, A. & Tavares, L. (2019). An entrepreneurial career impacts on job and family satisfaction. RAUSP Management Journal, 54(2), 125–140. https://doi.org/10.1108/RAUSP-09-2018-0081

Perrien, J., Chéron, E. J., & Zins, M. (1984). Recherche En Marketing : Méthodes et Décisions. Gaëtan Morin, Montréal.

Piccarozzi, M., Silvestri, C., & Morganti, P. (2021). Covid-19 in management studies: A systematic literature review. Sustainability (Switzerland), 13(7). https://doi.org/10.3390/su13073791.

Podsakoff, P. M., MacKenzie, S. B., Lee, J.Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. Journal of Applied Psychology, 88(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Rababah, A., Al-Haddad, L., Sial, M. S., Chunmei, Z., & Cherian, J. (2020). Analyzing the effects of COVID-19 pandemic on the financial performance of Chinese listed companies. Journal of Public Affairs, 20(4). https://doi.org/10.1002/pa.2440.

Rico, M., Pandit, N. R., & Puig, F. (2021). SME insolvency, bankruptcy, and survival: an examination of retrenchment strategies. Small Business Economics, 57(1), 111–126. https://doi.org/10.1007/s11187-019-00293-z

Sá, E. G. L., & Amorim, T. N. G. F. (2018). Uso e importância de indicadores de desempenho em empresas atacadistas do ramo alimentício a partir das perspectivas do Balanced Scorecard. Custos e @gronegócio, 14(3), 298-337.

Sebrae. (2020). Painel de Empresas. Retrieved in 19th October, 2021 available at https://datasebrae.com.br/totaldeempresas-11-05-2020.

Sibony, O., Viguerie, S. P., & Dye, R. (2009). Strategic planning : Three tips for 2009. The McKinsey Quarterly, April.

Srinivasan, R., Lilien, G. L., & Sridhar, S. (2011). Should firms spend more on research and development and advertising during recessions? Journal of Marketing, 75(3), 49–65. https://doi.org/10.2307/41228596

Tellis, G. J., & Tellis, K. (2009). Research on advertising in a recession: A critical review and synthesis. Journal of Advertising Research, 49(3). https://doi.org/ 10.2501/S0021849909090400

Wenzel, M., Stanske, S., & Lieberman, M. B. (2020). Strategic responses to crisis. Strategic Management Journal, 42 (2), 16-27. https://doi.org/10.1002/smj.3161

Wille, D., Hoffer, A., & Miller, S. M. (2017). Small-business financing after the financial crisis – lessons from the literature. Journal of Entrepreneurship and Public Policy, 6(3), 315–339. https://doi.org/10.1108/JEPP-D-17-00005

Zarnowitz, V. (1985). Recent Work on Business Cycles in Historical Perspective: A Review of Theories and Evidence. Journal of Economic Literature, 23(2), 523–580. https://doi.org/10.3386/w1503

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