ARTICLES

WHEN MACROECONOMIC CONDITIONS INFLUENCE MARKETING INVESTMENTS

Quando as condições macroeconômicas afetam os investimentos em marketing
Cuando las condiciones macroeconómicas influyen en las inversiones de marketing

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ABSTRACT

Although macroeconomic conditions are recognized as factors that influences country's performance, little is known about how companies from different sectors absorb such impacts. Using the myopic marketing theory, the paper goal is to analyze the relationship between macroeconomic conditions and marketing investments in Brazilian companies. The sample consists of 183 Brazilian companies with quarterly financial data, obtained from Economatica, and macroeconomic data, obtained from IpeaData (2010 to 2020). First, the results indicate that GDP, interest rates and consumer confidence are positively related, and the exchange rate and unemployment showed a negative relationship with marketing investments. Second, the impact of these relationships differs across sectors. Third, the results demonstrate that the level of investments and expansion of marketing investments depend on macroeconomic conditions, indicating which contexts influence the discretionary treatment of the marketing budget.

Keywords: investments, marketing, macroeconomics conditions, sectors, myopia.

RESUMO

Embora as condições macroeconômicas sejam reconhecidas como fatores que influenciam o desempenho do País, pouco se sabe como as empresas, os diferentes setores e o investimento em marketing absorvem tais impactos. Utilizando a teoria da miopia em marketing, o objetivo deste artigo é analisar a relação entre as condições macroeconômicas e os investimentos em marketing de empresas brasileiras. A amostra é formada por 183 empresas brasileiras com dados financeiros trimestrais, obtidos na Economática, e macroeconômicos, obtidos no IpeaData, de 2010 a 2020. Primeiro, os resultados indicam que o PIB, os juros e a confiança do consumidor estão relacionados positivamente, e o câmbio e o desemprego apresentaram relação negativa com os investimentos em marketing. Segundo, os impactos dessas relações diferem entre os vários setores. Terceiro, as análises demonstram que o nível de investimentos e de ampliação dos investimentos em marketing dependem das condições macroeconômicas, indicando que contextos influenciam o tratamento discricionário do orçamento de marketing.

Palavras-chave: investimentos, marketing, condições macroeconômicas, setores, miopia.

RESUMEN

Aunque las condiciones macroeconómicas son reconocidas como factores que influyen en el desempeño del país, poco se sabe sobre cómo las empresas, los diferentes sectores y la inversión en marketing absorben dichos impactos. Utilizando la teoría de la miopía en marketing, el objetivo de este artículo es analizar la relación entre las condiciones macroeconómicas y las inversiones en marketing de las empresas brasileñas. La muestra consta de 183 empresas brasileñas con datos financieros trimestrales, obtenidos de Economática, y datos macroeconómicos, obtenidos de IpeaData, de 2010 a 2020. En primer lugar, los resultados indican que el PIB, las tasas de interés y la confianza del consumidor están relacionados positivamente y el tipo de cambio y el desempleo mostraron una relación negativa con las inversiones en marketing. En segundo, los impactos de estas relaciones difieren entre sectores. En tercer lugar, los análisis demuestran que el nivel de inversiones y la expansión de las inversiones en marketing dependen de las condiciones macroeconómicas, lo que indica que los contextos influyen en el tratamiento discrecional del presupuesto de marketing.

Palabras clave: inversiones, marketing, condiciones macroeconómicas, sectores, miopía.

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INTRODUCTION

The marketing investment strategy is an option to generate a competitive advantage because it builds intangible assets, such as brand equity (Davcik & Sharma, 2015), customer portfolio, loyalty, etc., which boost the perpetuity of companies (Srivastava, Shervani & Fahey, 1998). For example, Apple invests high amounts in marketing, with US$ 1.8 billion/year in advertising alone (Basulto, 2018).

Although there is scientific evidence of an association between macroeconomic conditions and company results, they are limited to profit, leaving aside the marketing investment perspective. For example, the interest rate practiced in the market has a negative relationship with companies' profits, since the higher the interest rate, the higher the company's financial expenses (Fonseca *et al.* 2018). Inflation is also negatively related to corporate earnings, as it increases production costs (Guerra & Ornellas, 2014). Other evidence shows a negative relationship between the exchange rate and the results of companies, because the loss of exchange value of the domestic currency makes importation inputs more expensive, leading to higher costs and reduced results, benefiting only companies that export (Leite, Costa, & Monte, 2012). In fact, there seems to be a direct relationship between macroeconomic conditions and profit (Pandini *et al.*, 2018), leaving a research *gap* regarding the effect of macroeconomic conditions on marketing investments.

The company's profit is an element of the final result (*outcome*). Investment in marketing is an intermediary element (*process leads to outcome*) that precedes profit. From one perspective, marketing investment strategies must be aligned with macroeconomic conditions, as the allocation of resources aims to generate economic advantages based on the "qualities" present in the market (Sacui & Dumitru, 2014). From another perspective, in myopic marketing theory, the manipulation of marketing investments intensity can occur as a form of managing results, as reducing the expenses tends to increase profit in a "manipulated" way (Mizik, 2010; Saboo *et al.*, 2016). Therefore, little is known about how macroeconomic conditions affecting marketing investment as a process variable, which precedes profit, thus generating our analysis phenomenon. We expand previous studies using two marketing metrics – *i*) marketing investment intensity and *ii*) marketing investment variation.

Empirical evidence suggests that the macroeconomic scenario can be a determinant of marketing investment strategies because it affects company performance (Francischetti *et al.*, 2013). However, it remains unknown how macroeconomic conditions affect companies' marketing investments. Based on the myopic marketing theory, our goal is to analyze the relationship between macroeconomic aspects and *i*) marketing investment intensity and *ii*) marketing investment variation in Brazilian companies, considering multiple segments. The macroeconomic conditions include GDP, interest rate, exchange rate, inflation, unemployment and consumption, as they are the main conditions of the national economy that affect companies' financial budget strategies (Fonseca *et al.*, 2018).

The results of 183 Brazilian companies with quarterly financial data, period from 2010 to 2020, demonstrate that GDP, interest rates and consumer confidence are positively related to

marketing investments, while the exchange rate and unemployment were negatively related to marketing investments. This research generates significant contributions for companies, as it demonstrates that the marketing budget is managed according to the conditions of the national economy, indicating that the necessary constancy for this investment does not occur in some segments. Under the myopic marketing theory (Patel *et al.*, 2021; Saboo *et al.*, 2016; Bendig *et al.*, 2018), this research contributes by analyzing how macroeconomic conditions affect managers' decisions (C-level) and become an opportunity for profit management through marketing investments.

THEORETICAL REFERENCE

Marketing Investments

Marketing investments create and maintain market-based assets to generate value for the company (McIlkenny & Persaud, 2017). Marketing investments create value by generating profits, allowing current investors to benefit from an economic return greater than the cost of capital (considered capital expenditure or CAPEX) and potential investors to perceive how the firm will be able to generate future economic benefits (Francischetti *et al.*, 2013). Marketing investments posit the company in the market and signal the quality of business management, increasing investor confidence (Bae, Kim, & Oh, 2017).

Marketing investments generate physical, intangible, organizational and human assets. Examples of these assets include the brand (Bronnenberg, Dubé & Syverson, 2022), relationship with the channel, partners, customer loyalty, etc., influencing the choices of buyers, stakeholders, suppliers and, consequently, the company's equity (Sacui & Dumitru, 2014). Marketing investment is expensive for a company, has a high risky, and accentuates the risk in an adverse environment. Therefore, the firm performance depends on the ability of managers to apply marketing investments and seek to maintain financial stability (Bae *et al.*, 2017).

Myopic Marketing Theory: Reduction in marketing investment

According to the myopic marketing theory, managers hold more company information compared to investor information (Mizik, 2010). Managers need to balance present and future results, while investors tend to prioritize short-term results (Mizik & Jacobson, 2007). Because of this information asymmetry, there are pressures for companies to generate immediate profits, and when conditions lead to underperformance, managers may seek ways to "manipulate" profits to meet stakeholder expectations (Agnihotri & Bhattacharya, 2021).

Manipulation to leverage profits through real activity (Patel *et al.*, 2021) is recognized as a myopic management behavior (Saboo *et al.*, 2016), that is, a reduction in marketing investments represents a myopic marketing management (Mizik, 2010). Despite the various forms of results

manipulation, the most common practice of myopic management is the reduction of marketing investments that will generate financial leverage in the long term (Wang & Lou, 2020). By reducing marketing investments in a certain period, smaller expenses are registered in the accounting reports, and such registration makes an increase in the short-term profit. With the reduction in marketing investment, investors can price shares based on profits that were inflated through reduced expenses (Agnihotri & Bhattacharya, 2021).

Myopic marketing management can gain some short-term advantages by manipulating investors' perceptions. However, this management practice has the potential to generate a reduction in the firm's performance in the long term (Stein, 1989), as a contraction in future performance is expected since marketing activities affect intangible assets in the long term (Mizik, 2010). Therefore, the myopic marketing theory suggests that there is a long-term harmful effect. Given this scenario, our goal is to seek an alignment by positioning macroeconomic conditions as predictors of a) intensity of marketing investment and b) variation in the intensity of marketing investment, something until then done only with profit.

Assumptions

Relationship between GDP and marketing investments

The GDP in Brazil was something close to US$ 1.44 trillion in 2021 (compared to US$ 2.61 trillion in 2010). A rise in GDP means expansion of the economy, increased wealth and a decrease in investment risks (Dekimpe & Deleersnyder 2018). Investments are common at times of rising GDP because, as production generates wealth, individuals have more resources and purchasing power, boosting consumption and generating greater productivity (Rust *et al.*, 2004). The existence of greater wealth in circulation in the economy also improves future prospects, making the investment environment less risky and more attractive (Caetano & Silva, 2019). Therefore, we assume that when there is an increase in GDP, marketing investments are greater because firms feel safer to execute strategies aimed at new consumer trends and maintain investments to develop new resources in the future (Patel, Feng & Guedes, 2021).

H1: There is a positive relationship between GDP and marketing investments.

Relationship between interest and marketing investments

The basic interest rate of the SELIC economy in Brazil reached 14.25% in 2015, later decreasing to 2.0% in 2020 and increasing to 13.75% in 2023. When the interest rate is low, consumption naturally tends to increase (Andrade & Melo, 2016), as buyers can access financial resources more easily (Barbosa & Nogueira, 2018) and less effort is required from companies to obtain new customers or maintain current ones (Vieira *et al.*, 2019). The higher costs and access to

credit increases the level of indebtedness (de Matos *et al.*, 2019). Consequently, there is a drop in consumption, which discourages borrowing and reduces the circulation of money in the economy (Fonseca *et al.*, 2018). At a time of high interest rates, with a drop in consumption and an increase in the cost of borrowing (Pontel *et al.*, 2020), we expect companies to increase marketing investments to guarantee the demand for their products and services and, consequently, their market survival. We expect this positive relationship because greater marketing investments require the identification of interest rate factors to influence consumer choices (Patel *et al.*, 2021).

H2: There is a positive relationship between the interest rate and marketing investments.

Relationship between the exchange rate and marketing investments

The exchange rate is defined as the value of one currency concerning another (e.g. Dolar). With a drop in the exchange rate, there is an increase in competitiveness and competition (Combey & Togbenou, 2017). With the appreciation of the national currency against the foreign currency, imports become cheaper, reducing barriers to global competitiveness (Mattei & Scaramuzzi, 2016). With the appreciation of the national currency, we expect firms to reduce marketing investments and not need to respond to pressure from foreign competitors, as it is easier to import. The exchange rate policy is legitimized by the search for a competitive rate to protect and develop national firms against the global competition (Mattei & Scaramuzzi, 2016). Regarding the circulation of money in the economy, even if the private sector's demand for credit is domestic, financial institutions may be raising external resources and transferring them. Therefore, the firm's investment strategy can be directly or indirectly impacted by the exchange rate, since the company demands credit to finance its investment projects to remain in the market (Carneiro, Salles, & Yen Hon Wu, 2006).

H3: There is a negative relationship between the exchange rate (appreciation) and marketing investments.

Relationship between inflation and marketing investments

Inflation is the increase in prices of products and services, reducing purchasing power. Brazil has had several inflation rates in recent years, being 12.5% in 2002 and 10.7% in 2015 and 3.1% and 3.7 in 2006 and 2018. The increase in inflation reduces the level of business activity (Leite *et al.*, 2012) because the loss of currency purchasing power causes market prices to rise (Zschornack, Oliveira, & Souza, 2020). Rising inflation reduces profitability and increases corporate indebtedness. In addition, production costs become more expensive and consequently the sale price too, is passed on to the buyer (Fonseca *et al.*, 2018). We expect that marketing investments

will be reduced in an environment with high inflation with the justification of balancing cash flows in the short term and guaranteeing the perpetuity of the business (Stein, 1989). There is a tendency for the marketing department to be pressured to reduce budgets (Srinivasan & Romani, 2019; Bendle & Wang, 2017), given that when facing financial constraints (Mishra & Ewing, 2020) it is common for them to have reductions in product or service innovations (Palomino–Tamayo, Timana, & Cerviño, 2020).

H4: There is a negative relationship between inflation and marketing investments.

Relationship between the unemployment rate and marketing investments

The unemployment rate (prox. 12%, 2022) shows the relationship between the number of unemployed people (10.6 million in 2021) and the people who are economically active. Normally, the unemployment rate is the result of a drop in demand for the products or services offered by the contracting company and not the cost of employee salaries (Barbosa & Nogueira, 2018). The increase in the unemployment rate causes a feeling of uncertainty regarding the economic performance within families, affecting their consumption decisions, choosing to protect their resources and avoiding the consumption of non-essential products or services and also rationing the essential ones (Pandini *et al.*, 2018). The unemployment scenario makes fiscal and expansionist policies act to reduce this rate and increase consumption (Pontel *et al.*, 2020). When the unemployment rate increases, there is less circulation of family income in the economy and less consumption, affecting the production and profitability of companies and evidencing a scenario of uncertainties (Barbosa & Nogueira, 2018). We expect that this uncertainty will make marketing investments more difficult, as they are considered discretionary and can be reduced so that, in times of economic crisis, the company maintains high results (Mizik, 2010).

H5: There is a negative relationship between unemployment and marketing investments.

Relationship between consumer trust and marketing investments

The consumer confidence index (ICC-FGV) demonstrates consumer behavior regarding satisfaction and intention to consume considering the current and future economic scenario (Ternus & Oliveira, 2017). The higher the consumer confidence index, the more the Brazilian population is confident in the economy becoming more willing to consume goods and services. With high levels of confidence, consumers can analyze the economic context to plan consumption practices. However, consumers also react to emotional, and social oscillations or political crises (Caetano & Silva, 2019). We expected that the higher the ICC (e.g., the more satisfied consumers are and the intention to maintain or increase their consumption), companies will invest in marketing, as it is likely that competitors will also apply more aggressive sales strategies to take

advantage of the opportunity that the "confident" scenario represents to leverage revenues and profits (Ternus & Oliveira, 2017).

H6: There is a positive relationship between consumer trust and marketing investments.

METHODOLOGICAL PROCEDURES

Sample and Data

The secondary data are already published through Reference Reports from companies and government institutions. The data correspond to the longitudinal macroeconomic indices obtained from the economic database of the Federal Government, IpeaData, and the financial information of the companies was accessed through the Economática platform, making it necessary to merge the two databases of data. All data are quarterly and form panel data with 8,976 year-company observations.

The study sample initially had 297 publicly traded companies listed on the B3 stock exchange in the period from 2010 to 2020, without including financial institutions and insurance companies, as these have a different equity and operational structure than other companies. From the initial sample, 16 companies that act as holding companies and 98 companies due to lack of data or recent incorporation or listing on B3 were eliminated, making the final sample of 183 companies.

Measurement of Variables

Dependent Variable

The dependent variable is the intensity of marketing investments defined as the volume of resources allocated to marketing activities that contribute to profits in the short and long term (Rust *et al.*, 2004). Therefore, the intensity of marketing investment measures the behavior of marketing investments, which is carried out to generate value for the company (Francischetti *et al.*, 2013) and is determined by the budgetary and managerial strategies of the companies (Mizik, 2010).

The intensity of marketing investment was represented by means of a proxy built with the sum of selling, general and administrative expenses (SGA). In this study, we analyzed the absolute (static) and variability (dynamic) perspective of the marketing intensity investments. In the static form, we used the proxy of marketing expenses for a quarter weighted by the total assets recorded for the same quarter (Garcia, Vieira & Borges, 2022). In dynamic form, we compared the index of intensity of marketing investments of a quarter with the index of the same quarter of the previous year to measure the variation in these investments.

Predictive Variables and Covariates

The predictor variables are the macroeconomic conditions represented by indices widely accepted in the economic environment and made available by bodies linked to the federal government (IpeaData) and Fundação Getulio Vargas. To represent the Brazilian macroeconomic scenario, we used 1) gross domestic products (GDP), 2) interest, 3) exchange rate, evidenced by the dollar price in real units; 4) inflation measured by the general market price indicator (IGP-M); 5) unemployment and 6) consumer confidence index (ICC-FGV). See Appendix I for details.

We use covariates to control the effects of other conditions that may interfere the intensity of marketing investments. These covariates are: (a) profitability, which measures how efficient the company is in generating profits; (b) asset turnover, to verify the company's ability to use its equity to generate sales revenue; (c) sales growth, which is an indicator of the company's growth; (d) cash holding representing the firm's financial policy; (e) indebtedness, which verifies how much resources come from third-party capital; (f) market-to-book indicating the firm's value risk and (g) size, given that larger companies have more capacity to invest in marketing. Table 1 indicates the measurement of covariates. Appendix II shows the survey sample.

Table 1. Measurement of variables

Variable	Measurement	Data	References
Marketing Intensity	*Proxy* of quarterly selling, general and administrative expenses weighted by total assets at the end of quarter t	Relevant fact	Garcia *et al.* (2022), Palomino–Tamayo *et al.* (2020), Markovitch *et al.* (2020)
Marketing Intensity (Variation)	Quarterly variation of the *proxy* for quarterly selling, general and administrative expenses weighted by total assets at the end of quarter t	Relevant fact	
GDP	GDP R$ (Millions) of quarter *t*	Economatica	Barbosa & Nogueira (2018)
Fees	Selic rate fixed by the Copom BACEN (% pa) for quarter *t*	Economatica	Pontel *et al.* (2020)
Exchange	Variation of the R$ / US$ exchange rate in quarter t compared to the same quarter of the previous year	Economatica	Fonseca *et al . al.* (2018)
Inflation	IGPM variation (% per month) in quarter t compared to the same quarter of the previous year	Economatica	Zschornack *et al.* (2020)
Unemployment	Quarterly change in the unemployment rate (% am) in quarter t	Economatica	Barbosa & Nogueira (2018)
Consumer Confidence	t consumer confidence index	Economatica	Oliveira & Carneiro (2015)
Return on Assets (ROA)	Net income for the quarter divided by total assets at the end of the quarter t	Economatica	Markovitch *et al.* (2020), Francischetti *et al.* (2013)

Table 1. Measurement of variables

Concludes

Variable	Measurement	Data	References
Asset Turnover	Ratio between net revenue for the quarter and total assets at the end of quarter t	Economatica	Barbosa & Nogueira (2018)
Growth	Percentage change in revenues for quarter t compared to the same quarter of the previous year	Economatica	Palomino–Tamayo *et al.* (2020), Markovitch *et al.* (2020)
Cash Holding	Cash and cash equivalents weighted by total assets at the end of quarter t	Economatica	Martínez-Sola, García-Teruel, & Martínez-Solano (2013)
indebtedness	Total liabilities weighted by total assets at the end of quarter t	Economatica	Fonseca *et al.* (2018), Francischetti *et al.* (2013)
Market-to-Book	Market value divided by shareholders' equity at the end of quarter t	Economatica	Bae *et al.* (2017)
Size	Natural logarithm of total assets at the end of quarter t	Economatica	Bae *et al.* (2017), Palomino-Tamayo *et al.* (2020)

RESULTS

Table 2 presents the relationship between macroeconomic conditions and marketing investments. Appendix III shows the correlation of variables. We emphasize that the robustness test of the statistical models did not prove to be significant for the individual analyzes of the Oil, Gas and Biofuels sector and therefore we do not deepen the discussion of the results for this sector. We did not carry out specific analyzes for the Communication and Information Technology sectors because the sample contains few companies in each of these sectors (3 and 4, respectively), but we did for other segments.

Table 2. Relationship between macroeconomic aspects and the intensity of marketing investments

DV: Intensity of marketing investments	All Sectors (full sample)		industrial goods		Cyclical Consumption		Non-cyclical Consumption		Basic Materials		Petr., Gas and Biocomb.		Health	
Predictive variables	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value
GDP	0.00*	2.25	0.00*	2.06	0.00	1.35	0.00	-1.23	0.00□	1.96	-0.00	-1.42	0.00□	2.08
Fees	0.04***	3.54	0.05*	2.05	0.03	1.51	0.02	1.38	0.01	0.33	-0.03	-0.50	0.06*	2.24
Exchange	-0.00	-0.20	0.00□	1.76	-0.00	-0.08	0.00	0.27	-0.00	-0.55	-0.01	-1.36	-0.00	-0.75
Inflation	0.00	0.80	0.00	0.08	0.00	0.73	-0.00	-0.82	0.00	1.39	0.00	0.99	-0.00	-0.48
Unemployment	-0.00	-0.78	0.00	0.76	-0.01□	-1.70	-0.00	-0.35	0.00	0.15	0.02□	1.89	-0.01*	-2.32

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Concludes

Table 2. Relationship between macroeconomic aspects and the intensity of marketing investments

DV: Intensity of marketing investments	All Sectors (full sample)		industrial goods		Cyclical Consumption		Non-cyclical Consumption		Basic Materials		Petr., Gas and Biocomb.		Health	
Consumer Confidence	0.00*	2.17	0.00	1.42	0.00	0.35	0.00	0.52	0.00	1.70	0.00	1.36	-0.00	-0.31
Covariates														
ROA	-0.10***	-4.36	-0.11	-1.64	-0.14***	-4.58	-0.04*	-2.65	0.03	-1.22	-0.07	-1.50	-0.27***	-4.01
Asset Turnover	0.11***	7.93	0.07***	3.56	0.15***	7.74	0.14***	5.57	0.04*	2.81	0.16***	6.00	0.16***	4.65
Growth	-0.00▯	-1.74	-0.00	-0.59	-0.00	-1.53	-0.00*	-2.66	0.00	0.25	-0.00	-0.69	0.01	0.69
Cash Holding	-0.01	-1.53	-0.01	-1.04	-0.02	-1.21	0.00	0.19	-0.01	-1.10	-0.01	-0.42	-0.01	-0.67
Indebtedness	0.00	0.81	0.00	0.83	-0.00	-1.07	0.01*	2.76	-0.01*	-2.43	0.00	0.79	-0.01	-0.94
Market-to-Book	**-0.00**	-0.90	0.00	0.60	-0.00	-1.59	-0.00	-0.81	0.00	0.76	0.00	0.39	0.00	0.95
Size	-0.01***	-4.93	-0.01**	-3.26	-0.00▯	-1.90	-0.01	-1.47	-0.00	-1.58	-0.01*	-2.29	-0.01	-1.06
Constant	0.11***	4.86	0.14**	2.85	0.06*	2.28	0.12▯	1.95	0.06	1.69	0.17▯	2.05	0.11	1.02
N (remarks)	5,032		1,143		1,866		563		658		279		335	
Test F	16.67***		5.09***		18.57***		42.86***		7.91***		0.00		3785.93***	
R²														
Within	0.30		0.20		0.35		0.50		0.19		0.57		0.60	
Between	0.29		0.52		0.46		0.26		0.40		0.57		0.72	
Overall	0.29		0.40		0.44		0.27		0.39		0.52		0.66	
Fixed Effects	Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Standard error clustered by company	Yes		Yes		Yes		Yes		Yes		Yes		Yes	

Note. *** sig < 0.001, ** sig. < 0.01, * sig. < 0.05, ▯ sig. < 0.1.

Hypothesis H1 proposes a positive relationship between GDP and marketing investments. Considering the complete sample, the results indicate that GDP has a positive relationship with the intensity of marketing investments (ψ =0.00, $p<0.05$). Considering the sample by sector, the finding demonstrates the same positive relationship between GDP and the intensity of marketing investments in the industrial goods sector (ψ =0.00, p <0.05), basic materials (ψ =0.00, $p<0.1$) and health (ψ =0.00, $p<0.1$). Companies in the sectors of cyclical consumption (ψ =0.00, p =ns) and non-cyclical consumption (ψ =0.00, p = ns) showed no significant influence. These results partially support H1.

Hypothesis H2 proposes a positive relationship between interest and marketing investments. The results showed that there is a positive relationship between interest and the intensity of marketing investments (ψ =0.04, p <0.001). The analysis by sector indicates that companies in the segment of industrial goods (ψ =0.05, p <0.05) and health (ψ =0.06, p <0.05) present similar behavior. No significant effects were found for companies in the sectors of cyclical consumption (ψ =0.03, p = ns), non-cyclical consumption (ψ =0.02, p = ns) and basic materials (ψ =0.01, p = ns). These results partially support H2.

Hypothesis H3 proposes a negative relationship between the exchange rate and marketing investments. The results reported that the exchange rate has a positive relationship with marketing investments in the industrial goods sector (ψ =0.00, p <0.10). The analysis of the effects of the total sample (ψ =-0.00, p = ns) and of the companies on cyclical consumption (ψ =-0.00, p = ns), non-cyclical consumption (ψ =0.00, p = ns), basic materials (ψ =-0.00, p = ns) and health (ψ =-0.00, p = ns) did not indicate a significant effect. These results do not support H3.

Hypothesis H4 proposes a negative relationship between inflation and marketing investments. The results do not show significant effects on the complete sample (ψ =0.00, p = ns), industrial goods (ψ =0.00, p = ns), cyclical consumption (ψ =0.00, p = ns), consumption non-cyclical (ψ =-0.00, p = ns), basic materials (ψ =0.00, p = ns) and health (ψ = -0.00, p = ns). The results do not support H 4.

Hypothesis H5 proposes a negative relationship between unemployment and marketing investments. The results indicate that this relationship is relevant and negative for companies in the cyclical consumption sector (ψ =-0.01, p< 0.1) and health (ψ =-0.01, p <0.05) but that it does not there are significant effects for the complete sample (ψ =-0.00, p = ns) and in the individual analyzes of industrial goods sectors (ψ =0.00, p = ns), non-cyclical consumption (ψ =-0.00 , p = ns) and basic materials (ψ =0.00, p = ns). These results partially support H5.

Hypothesis H6 suggests a positive relationship between consumer confidence and marketing investments. The results indicate that consumer confidence has a positive relationship with the intensity of marketing investments (ψ =0.00, p <0.05) in the complete sample. In the subgroups industrial goods (ψ =0.00, p=ns), cyclical consumption (ψ =0.00, p = ns), non-cyclical consumption (ψ =0.00, p = ns), basic materials (ψ = 0.00, p = ns) and health (ψ =-0.00, p = ns) there is no significant relationship. These results partially support H6.

Table 3. Relationship between macroeconomic aspects and the variation of intensity of marketing investments

DV: Variation in the intensity of marketing investments	All sectors (full sample)		industrial goods		Cyclical Consumption		Non-cyclical Consumption		Basic Materials		Petr., Gas and Biocomb.		Health	
Predictive variables	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	t-value	Coef.	**t-value**
GDP	0.00*	2.38	0.00	1.23	0.00	1.52	0.00	1.63	0.00	1.44	0.00	-0.63	0.00	0.38
Fees	0.24	0.99	0.92*	2.08	0.01	0.02	0.20	0.29	0.68	1.02	-1.25	-1.08	0.02	0.03
Exchange	-0.08**	-3.17	-0.06	-0.92	-0.04	-0.90	-0.14*	-2.12	-0.13*	-2.28	-0.09	-0.72	-0.08	-0.86
Inflation	0.00	0.05	0.00	0.36	0.00	0.52	0.00	0.67	-0.00	-0.10	-0.00	-0.04	-0.00	-1.00

Table 3. Relationship between macroeconomic aspects and the variation of intensity of marketing investments

<div align="right">Concludes</div>

DV: Variation in the intensity of marketing investments	All sectors (full sample)		industrial goods		Cyclical Consumption		Non-cyclical Consumption		Basic Materials		Petr., Gas and Biocomb.		Health	
Unemployment	0.01	0.29	-0.14	-1.57	0.04	0.44	-0.08	-0.64	-0.01	-0.11	0.37	1.77	0.11	0.92
Consumer Confidence	0.00	0.68	-0.00	-0.15	0.00□	1.81	-0.00	-0.43	-0.00	-0.69	0.00	0.53	0.00	0.45
Covariates														
ROA	-1.51***	-6.61	-1.28***	-3.70	-2.39***	-5.91	-0.54	-1.08	-0.30	-0.69	-0.64	-1.55	-5.32***	-4.10
Asset Turnover	0.93***	6.51	0.84**	3.12	0.98***	4.14	0.98***	5.46	0.54**	2.97	1.97***	6.87	0.91***	4.53
Growth	0.08***	3.60	0.09□	1.94	0.05	1.65	0.18**	3.05	0.14**	3.01	-0.05	-0.59	0.28**	3.39
Cash Holding	-0.06	-0.47	0.03	0.14	-0.16	-0.52	-0.15	-0.81	0.36	1.01	-0.53	-1.19	-0.22	-1.14
Indebtedness	-0.03	-0.80	0.06	0.97	-0.13*	-2.45	-0.10	-1.11	-0.17*	-2.34	-0.03	-0.36	-0.55*	-2.65
Market-to-Book	-0.01□	-1.75	-0.01	-1.21	-0.00	-0.52	-0.01□	-1.83	0.01	0.93	-0.01	-1.10	0.01	1.17
Size	-0.11***	-6.05	-0.07	-1.44	-0.12***	-4.14	-0.14	-1.40	-0.11*	-2.43	-0.13**	-3.55	-0.11	-1.17
Constant	1.33***	4.57	0.57	0.79	1.41**	3.03	1.74	1.12	1.49*	2.18	1.85*	2.85	1.51	1.33
No	5,032		1,143		1,866		563		658		279		335	
Test F	18.96***		6.27***		14.79***		9.24***		5.91***		0.00		114.41***	
R²														
Within	0.11		0.09		0.14		0.19		0.11		0.16		0.31	
Between	0.00		0.00		0.02		0.01		0.16		0.09		0.13	
Overall	0.01		0.03		0.02		0.01		0.03		0.01		0.03	
Fixed Effects	Yes		Yes		Yes		Yes		Yes		Yes		Yes	
Standard error clustered by company	Yes		Yes		Yes		Yes		Yes		Yes		Yes	

Note. *** sig < 0.001, ** sig. < 0.01, * sig. < 0.05, □ sig. < 0.1.

Table 3 presents the relationship between macroeconomic aspects and the variation in the intensity of marketing investments, the second dependent variable. The discussion of the results of the Oil, Gas and Biofuels sector was not deepened because the robustness test of the statistical models did not prove to be significant for the sector analyses. In the complete sample, the results indicate that GDP has a positive relationship with the variation in the intensity of marketing investments ($\psi = 0.00$, $p < 0.05$). The same relationship was not identified for the sectors of industrial goods ($\psi = 0.00$, $p = ns$), cyclical consumption ($\psi = 0.00$, $p = ns$), non-cyclical consumption ($\psi = 0.00$, $p = ns$), basic materials ($\psi = 0.00$, $p = ns$) and health ($\psi = .00$, $p = ns$). These results partially support H1.

The results indicate that in the industrial goods sector ($\psi = 0.92$, $p < .05$) interest is positively related to the variation in the intensity of marketing investments. The tests showed that in the total sample ($\psi = .24$, $p = ns$), in the sector of cyclical consumption ($\psi = 0.01$, $p = ns$), non-

cyclical consumption (ψ =0.20, p = ns), basic materials (ψ =0.68, p = ns) and health (ψ =.02 p = ns) the same relationship was not found. These results partially support H2.

The results of tests with the total sample indicate that there is a negative relationship between the exchange rate and the variation in the intensity of marketing investments (ψ =-0.08, p <0.01). The same effect is found in the analysis of non-cyclical consumption sectors (ψ =-0.14, p =<0.05) and basic materials (ψ =-0.13, p <0.05). The relationship between the exchange rate and the variation in the intensity of marketing investments did not show significant effects in the sectors of industrial goods (ψ =-0.06, p = ns), cyclical consumption (ψ =-0.04, p = ns) and health (ψ =-0.08, p = ns). These results partially support H3.

The results indicate that this relationship is not significant in the complete sample (ψ =0.00, p = ns) as well as in the individual analyzes of the sectors of industrial goods (ψ =0.00, p = ns), cyclical consumption (ψ = 0.00, p = ns), non-cyclical consumption (ψ =0.00, p = ns), basic materials (ψ = -0.00, p = ns) and health (ψ = -0.00, p = ns). These results do not support H4.

The results indicate that unemployment does not have a significant relationship with the variation in the intensity of marketing investments in the total sample (ψ =0.01, p = ns). We found similar results in the sectors of industrial goods (ψ =-0.14, p = ns), cyclical consumption (ψ =0.04, p = ns), non-cyclical consumption (ψ =-0.08, p = ns), basic materials (ψ = -0.01, p = ns) and health (ψ =0.11, p = ns). These results do not support H5.

The results show that this relationship is not significant in the complete sample (ψ =0.00, p = ns) and in the individual analysis of industrial goods sectors (ψ =-0.00, p = ns), non-cyclical consumption (ψ =-0.00, p = ns), basic materials (ψ = -0.00, p = ns) and health (ψ =0.00, p = ns). In the cyclical consumption sector (ψ =0.00, p =<0.1) a positive relationship was found between consumer confidence and the variation in the intensity of marketing investments. These results partially support H6. Table 4 presents additional information.

Table 4. Correlation matrix and descriptive statistics

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Intens. Inv. Marketing	1.00														
(2) Var. Intens. Inv. Mkt	0.12***	1.00													
(3) GDP	-0.02□	-0.01	1.00												
(4) Interest	0.04***	0.05***	-0.47***	1.00											
(5) Exchange	-0.03**	-0.05***	0.34***	-0.18***	1.00										
(6) Inflation	0.03*	0.03**	-0.20***	0.30***	0.20***	1.00									
(7) Unemployment	-0.01	-0.01	0.06***	0.47***	0.15***	-0.20***	1.00								

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Table 4. Correlation matrix and descriptive statistics

Concludes

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(8) Consumer Confidence	0.01	0.00	-0.75***	-0.08***	-0.39***	0.08***	-0.65***	1.00							
(9) ROA	0.02*	-0.07***	-0.08***	-0.02	-0.06***	-0.01	-0.05***	0.11***	1.00						
(10) Asset Turnover	0.61***	0.05***	-0.07***	0.03**	-0.05***	0.02	-0.03**	0.07***	0.22***	1.00					
(11) Sales Growth	0.01	0.09***	-0.11***	-0.07***	-0.06***	-0.03**	-0.12***	0.17***	0.23***	0.15***	1.00				
(12) *Cash Holding*	-0.09***	-0.03*	-0.03**	-0.00	0.03**	-0.05***	0.04**	0.03*	0.20***	0.05***	0.03*	1.00			
(13) Debt	0.06***	0.02☐	0.12***	-0.07***	0.04***	-0.03**	0.00	-0.09***	-0.49***	-0.02*	-0.07***	-0.26***	1.00		
(14) *Market-to-Book*	0.23***	-0.04**	-0.01	-0.08***	-0.03**	-0.02☐	-0.05***	0.07***	0.28***	0.22***	0.12***	0.16***	-0.21***	1.00	
(15) Size	-0.30***	-0.03**	0.06***	-0.04***	0.04**	-0.02☐	0.00	-0.04***	0.14***	-0.17***	0.06***	0.16***	-0.23***	0.14***	1.00
No	7,829	7,538	8,976	8,976	8,976	8,976	6,324	8,976	7,829	7,829	7,529	7,464	7,916	6,990	7,916
Average	0.04	-0.01	493,220.50	0.09	0.11	-9.13	0.09	125.53	0.00	0.19	0.09	0.08	0.71	1.81	14.52
Standard deviation	0.03	0.25	96,616.70	0.03	0.18	65.69	0.16	25.43	0.03	0.13	0.32	0.07	0.49	2.23	1.91
Minimum	0.00	-0.56	311,651.60	0.02	-0.23	-435.00	-0.11	85.53	-0.11	0.02	-0.64	0.00	0.16	-1.39	6.75
Maximum	0.14	0.77	685,479.80	0.14	0.62	63.00	0.39	164.42	0.06	0.57	1.10	0.29	2.66	9.48	20.74

Note. *** sig < 0.001, ** sig. < 0.01, * sig. < 0.05, ☐ sig. < 0.1.

DISCUSSION

The finding of H1 has theoretical logic given that when there is an increase in GDP, marketing investments are greater because organizations feel safer to implement tactics aimed at new consumer trends and maintain investments for new products. The GDP was the macroeconomic aspect that was most associated with marketing investments. The analysis of the results showed that the higher the GDP, being a lower risk environment and more resources in circulation (Caetano & Silva, 2019), the more companies are willing to employ high intensity of marketing investments, indicating that companies seek security in the market stability in decision-making (Palomino–Tamayo *et al.*, 2020) both the level and the variation in the volume of marketing investments.

The result of H2 is explained since when the interest rate is low, buyers can access financial resources more easily, increasing consumption and making firms offer new products to customers. Considering that interest rates affect the direction of resources, the existence of a positive association between this macroeconomic aspect and marketing intensity underscores efforts in the search for a consumer market (Fonseca *et al.*, 2018). The increase in the cost of capital through interest rates is related to high marketing investments and also to the increase in the marketing budget that expands marketing practices to generate financial advantages to balance the negative effects of a possible increase in the indebtedness of companies (Palomino–Tamayo *et al.*, 2020). Just as companies need more financial resources to settle their debts, client companies are in a similar situation, which can lead to the decision to postpone investments in fixed assets. Marketing investments keep customers interested in purchasing the products offered (Bae *et al.*, 2017).

Empirically, the work shows and supports the notion that with the appreciation of the national currency, firms reduce marketing investments (expected by the myopic marketing theory), as it is easier to import. Thus, the firm›s investment strategy is directly and indirectly impacted by the exchange rate (H3). Empirical evidence from H4 shows that marketing investments are reduced in an environment with high inflation to balance cash flows in the short term, reduce budgets, face financial constraints and ensure the perpetuity of the business. Inflation was unrelated to marketing investments in any test. This demonstrates that price changes in marketing expenses may be passed on to the final consumer (Bresser-Pereira, 2010) without changing the composition of the budget for marketing investments. The theoretical justification for H5 is that the increase in the unemployment rate causes a feeling of doubt about economic performance, affecting consumer decisions and organizations' profitability. When the unemployment rate increases, there is a reduction in the company's results -- in the face of uncertainty.

CONCLUSION

Theoretical implications

This investigation aimed to analyze the relationship between macroeconomic aspects and two marketing metrics – marketing investment intensity and marketing investment variation. Some theoretical implications arise from the findings of the work. Under the myopic marketing theory (Patel *et al.*, 2021; Saboo *et al.*, 2016; Bendig *et al.*, 2018), this research collaborates by analyzing how macroeconomic conditions affect managers' decisions (C-level) and become an opportunity for profit management through marketing investments.

Drawing on the myopic marketing theory and the use of information, this study cooperates with the discretionary treatment of marketing (Mizik, 2010), as it increases the understanding that the manipulation of marketing investments is the product of myopic management. From

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the perspective of marketing myopia, the results of the study show the market that the creation of value by the company can be affected by the absence of a lifetime marketing budget in order to obtain the expected results, especially in aspects that require investments processes whose results occur mainly in the long term. The work extends the theory of myopia in marketing by showing that managers hold more company information compared to investor information and that they need to balance present and future results, while investors tend to prioritize short-term results (Mizik, 2010; Mizik & Jacobson, 2007). Because of this information asymmetry, the theory indicates that there are pressures for companies to generate immediate profits and, when conditions lead to underperformance (Agnihotri & Bhattacharya, 2021).

Practical implications

In macroeconomic practice, the exchange rate has a negative relationship with the variation in marketing intensity, suggesting that the marketing budget is susceptible to variations in external and internal competitive aspects (Rust *et al.*, 2004). This implies that exchange variation reduces the increase in marketing investments, indicating that companies reduce marketing budgets when there is exchange rate depreciation of the domestic currency. This is because the exchange rate increase generates advantages for exporting companies (Mattei & Scaramuzzi, 2016). Another implication occurs because when companies obtain high gains due to exchange rate variation, marketing investments are used in a smaller volume (Mattei, & Scaramuzzi, 2016). The increase in interest rates stimulates financial investments and lower consumption, demanding more marketing investments to encourage consumers to search for services and products. With the rise in unemployment, there is a drop in consumption and wealth in circulation and the rise in unemployment generates less demand for services and products (Barbosa & Nogueira, 2018). In terms of implications for management, companies choose to slow down marketing investments as they understand that marketing can be a fruitless investment. Furthermore, for the governmental implication and monetary policy, the analysis of the result showed that GDP, interest rates and consumer confidence positively influence marketing investments, while the exchange rate and unemployment negatively influence marketing investments. The results and analyzes presented contribute to the macroeconomic literature (Pandini, Stupp & Fabre, 2018), given we discussed the empirical evidence of these aspects associated with the management of marketing budgets of Brazilian firms.

Implication for the sectors

For the industrial goods sector, which produces machinery and equipment for other companies that produce goods or provide services, the results show that the increase in GDP and consumer confidence, conditions that generate an increase in demand, drive high marketing investments in this sector. In the cyclical consumption sector, with retail companies, there is a negative relationship between unemployment and the intensity of investment in marketing. This indicates

that, in a scenario where consumer income (Matos *et al.*, 2019) may be reduced by unemployment, companies in the cyclical consumption sector tend to use low volumes of marketing budget. However, the greater the consumer confidence, the greater the growth in the intensity of marketing investments in this sector.

The results showed that the non-cyclical consumer sector, which sells essential products and services, is not very sensitive to the macroeconomic scenario, with a negative relationship between the exchange rate and the growth in the intensity of marketing investments. It is noticed that the essentiality of the products in this sector is associated with the stability in marketing investments that only suffers from the effects of the exchange rate because the increase in costs related to the acquisition of external inputs or influenced by foreign currencies, especially companies that operate with *commodities*, generates cut of discretionary costs, such as marketing is considered, so that it does not increase the costs of products or services and ensure positive results (Wang & Lou, 2020).

Companies in the basic materials sector produce inputs and industrial goods for companies in other sectors. The results showed that the increase in production and resources in circulation measured by GDP is positively related to the intensity of marketing investments (Palomino–Tamayo *et al.*, 2020). This is because the development of an economy provides greater own resources for companies (Pandini *et al.*, 2018). Thus, the wealth and development provided by other segments generate increased demand for the basic materials sector, which is also motivated to invest and innovate. In the health sector, we identified that the intensity of marketing investments is positively associated with GDP and the interest rate and negatively with the unemployment rate. The circulation of wealth occurs due to a more active consumer market, which makes families more willing to spend on health and companies to invest to attract these consumers.

Research limitations

There is a limitation in that the data are quarterly and form a panel data with 8,976 year-company observations. Annual data may have a different configuration and generate different findings. There is another period limitation, being from 2010 to 2020. Longer periods can capture different fluctuations in information variances. Another point of limitation is not including financial institutions and insurance companies, as these have a different equity and operational structure from other firms. Future works may consider this limitation and include them.

Future Research

First, future research could test the industry's moderating role, coding into industrial goods, service providers, cyclical consumption and others. The segment has differentiation and makes firms obtain greater access to financing (e.g. Vale do Rio Doce), exchange rate variations (as in the case of Weg Electric Corp.) and other aspects of inflation (for the banking sector). Future research may test the moderator role of corporate social responsibility (CSR), coding in high and low. For

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example, if the organization has a high score in corporate social responsibility (Vieira *et al.*, 2022), the effects of GDP, interest rate and exchange rate on investment in marketing would be constant. Other works can analyze the impact of inflation, GDP and interest rate on the company's business capacity. For example, by having high levels of interest rates, inflation, GDP and interest rate, the firm can reduce its exploration capacity and exploitation (Severgnini *et al.*, 2019).

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Os/as autores/as não têm conflitos de interesse a declarar.

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