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Relationship between Business Strategy and Capital Structure

Caroline Keidann Soschinski
https://orcid.org/0000-0002-0135-0729

Alice Carolina Ames
https://orcid.org/0000-0002-8287-8831

Ilse Maria Beuren
https://orcid.org/0000-0003-4007-6408

Abstract

Objective: This paper analyzes the relationship between business strategy and capital structure. **Methods:** Archival research was conducted with 488 observations of companies listed in Brasil, Bolsa, Balcão [B]3. As proxies of interest, the classification of companies into prospectors and defenders was adopted for business strategy, and the relationship between third-party and equity capital was used for capital structure. The econometric model was performed using ordinary least squares linear multiple regression, controlling for year and sector fixed effects.

Results: The results reveal that business strategy relates to how a company finances its capital. Prospectors tend to depend more heavily on third-party capital, present more significant risks, and lower cash flow profitability than defender companies. In contrast, because defenders seek market dominance and make more conservative decisions, they generate funds internally to finance their activities.

Contributions: These findings show that the aggressive behavior of companies toward capital financing may be linked to the choice of an expansion strategy, indicating that management decisions influence this financial information.

Keywords: Prospector strategy; Defender strategy; Capital structure.

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1. Introduction

Companies and researchers have paid particular attention to capital structure, especially regarding the decisions that determine its composition, considering that the choice between third-party capital and equity in the capital structure tends to impact a company's profit (Capp, Cetrini & Oriani, 2019). Companies with lower operating cash flow tend to issue debt, while companies with higher operating cash flow use internal resources to meet their needs (Harris & Roark, 2019).

Control over a company's ability to use collateral to subsidize loans appears to be related to its size (Saif-Alyousfi *et al*., 2020). The asset structure suggests that lower agency costs of debt lead to higher productivity in a company's value, resulting in more growth opportunities and greater transfer of wealth from debt holders to shareholders (Ramli, Latan & Solovida, 2019). In this conjecture, the managers' experience supports decision-making regarding capital structure in balancing benefits and costs of debt financing, adding value to a company (Matemilola, Bany-Ariffin, Azman-Saini & Nassir, 2018).

A company's strategic choices may also influence its capital structure. From this perspective, Cappa *et al*. (2019) investigated the impact of corporate internationalization, diversification, and integration strategies on the capital structure of Italian firms. The results indicate that strategic decisions affect the companies' capital structure. Although this topic has attracted the attention of researchers, the literature has focused primarily on isolated strategies. This study differs from that of Cappa *et al*. (2019), in which three corporate strategies and the debt ratio are analyzed.

Considering the gap Cappa *et al*. (2019) identified, this study focuses on the impact of business (non-corporate) strategies on capital structure. Business strategy is a characteristic that defines companies according to their practices in the pursuit of main organizational objectives. According to Miles and Snow (1978), companies are classified into four types of business strategies: (i) defenders – intended to control costs and keep the market share stable, considering a limited set of products; (ii) prospectors – seek growth, hence, updating and innovating products and services is required; (iii) analyzers – which combines the characteristics of defenders and prospectors; and (iv) reactors – which are unable to respond to the environment's changes and uncertainties properly.

Previous studies have addressed the impact of corporate strategies on capital structure (Chkir & Cosset, 2003; Javorcik & Spatareanu, 2009; Jouida, 2018; Cappa *et al*., 2019); however, little attention has been paid to other types of organizational strategies such as defenders, prospectors, analyzers, and reactors. Cappa *et al*. (2019) highlight that, despite the financial field recognizing the importance of considering strategic management aspects as capital structure determinants, research has yet to agree on the relationship between business strategy and capital structure.

From this perspective, the following study question arises: **What is the relationship between companies' business strategy and their capital structure?** Therefore, this study analyzes the relationship between companies' business strategy and capital structure. This objective was motivated by a gap in research that focuses on analyzing the relationship between managerial decisions and corporate strategies on capital structure but not the influence of business strategies on capital composition.

It is assumed that a relationship between business strategy and capital structure exists. According to Bentley-Goode, Omer, and Twedt (2019), prospectors with strategies to innovate and differentiate themselves in the market tend to exceed their resources, which may compromise profitability in the short term. Lower profitability, in turn, indicates that these companies are likely to need more resources to finance extensive investments in research and development (R&D), leading them to raise funds from third parties. Therefore, it is conjectured that companies with different business strategies use different resources (their own or those of third parties) to finance their activities.

The study showed that prospector companies depend on third-party capital, while defender companies rely on their own capital. The propensity test showed robust results, equating defenders and prospectors in the same sector based on similar size, profitability, liquidity, and risk. Even though the companies present similar criteria, different business strategies led them to rely on different sources to finance their activities.

These results have implications for different stakeholders and the literature. For example, there are implications for research investigating the effects of business strategy on capital structure, as the results highlight that the composition of a company's capital structure may be related to its business strategies. Hence, capital structure composition might be used as a control variable to analyze capital financing decisions. Companies that align their strategies around innovation and expansion objectives may attempt to access external resources to finance these activities.

The implications for the market, potential investors, and analysts concern the results showing that the more aggressive behavior of prospector companies when seeking resources to finance their capital may be linked to a business strategy. Therefore, identifying prospectors may help to understand the use of third-party capital in terms of debt or leverage, as these companies seem motivated to leverage their businesses and expand their market.

This study's contributions include considering two apparently disconnected areas in accounting research: management accounting, when the focus is on business strategy, and financial accounting, when capital structure is considered. The results show that strategic decisions may indicate a significant relationship between managerial and financial information. Managerial decisions regarding a company's future expansion prospects provide helpful information to investors and analysts when such a relationship is properly understood, especially regarding financial information relating to the capital structure.

2. Theoretical Framework and Hypotheses

2.1 Capital structure determinants

Capital structure, a combination of debt and equity that an organization uses to subsidize investment and financing decisions, is vital for a company's growth (Kumar, Colombage & Rao, 2017). The trade-off theory of capital structure concerns the notion that a company replaces debt with equity or equity with debt to increase its value and balance the tax benefits that arise from the interest embedded in financial costs (Myers, 1984).

The optimal level of debt to minimize the general cost of capital and simultaneously increase a company's profitability is discussed within the scope of corporate finance (Jaisinghani & Kanjilal, 2017). The cost of capital is equal to the interest rate on bonds, so it does not depend on funds acquired through debt instruments or new equity issues (Modigliani & Miller, 1958). Due to the importance of analyzing companies' capital structure, previous studies have focused on identifying factors that can impact it (Ramli *et al.*, 2019) as a way to reduce the costs of capital and maximize profitability (Jaisinghani & Kanjilal, 2017).

Several studies investigated the determinants of capital structure. They found that factors such as company size, asset structure, growth opportunity (Ramli *et al.*, 2019), manager experience (Matemilola *et al.*, 2018), and corporate strategy (Cappa *et al.*, 2019) have an impact on capital structure. Chkir and Cosset (2003), Javorcik and Spatareanu (2009), Jouida (2018), and Cappa *et al.* (2019) stand out among the studies addressing strategy.

Chkir and Cosset (2003) suggest that average debt decreases in the year of acquisition, increasing only after the first to the third year after the acquisition. It shows that in addition to the impact of size and profitability on capital structure, debt financing also increases when a company does not have subsidiaries in another country, indicating the effect of diversification. Javorcik and Spatareanu (2009) confirm that companies supplying multinational companies experience fewer credit restrictions, suggesting that the self-selection of firms with fewer restrictions for multinational suppliers, rather than benefits related to supply, indicates good commercial relationships in credit markets.

Jouida (2018) confirmed the reverse causality between the elements addressed in this relationship. However, there is a bidirectional but inverse causal relationship between profitability and debt, as stability does not confirm the relationship between diversification and leverage. The study above considers this dynamic structure, offering new avenues for research involving diversification strategy, capital structure, and profitability in the financial sector to assist managers in making better strategic and financial decisions. Finally, Cappa *et al.* (2019) verified the effect of internationalization, diversification, and integration strategies on capital structure. They observed that corporate strategy impacts less externally financially exposed internationalized and integrated companies, while diversified companies with greater debt experience an impact on investment decisions depending on the strategy used.

The previous discussion regarding capital structure determinants indicates different implications for the models analyzing them. Frank and Goyal (2009) consider that companies must decide on debt financing and reallocate some future cash flows. However, they warn that the factors driving this decision are yet to be explored, despite efforts in recent decades in this direction. Therefore, this study considers the financial approach concerning its impact on capital structure and the managerial approach considering its impact on business strategies.

2.2 Miles and Snow's (1978) Business Strategies

This study is based on the business strategies proposed by Miles and Snow (1978) to characterize the behavior of companies in strategic terms and the effects of such strategies on capital structure. They classify business strategies as prospectors, defenders, analyzers, and reactors. Miles and Snow (1978) note that, unlike the analyzer and reactor typologies, defender and prospector companies have opposite characteristics. In line with Beuren and Gomes (2022), we address only the two extreme archetypes reported in the literature, i.e., the defender and prospector strategic profiles.

The prospector strategy focuses on reaching new markets and maintaining a reputation for innovative product development, i.e., focusing more on this purpose than high profitability (Miles & Snow, 1978). Such a strategy may lead prospectors to experience failures and difficulty reaching certain profit levels; product and market innovation strategies lead to increased risks, making companies more prone to failure (Rajagopalan, 1997).

On the other hand, the defender strategy seeks to isolate part of the total market and create a domain, even if with a limited set of products targeted at a restricted market segment (Miles & Snow, 1978). Therefore, defenders use technical and standardized procedures through cost leadership to achieve greater cost efficiency (Zhang, 2020).

Analyzers, in turn, combine the defender and prospector strategies to minimize risk and obtain increased profits. Hence, this typology emphasizes the strengths of these two classifications, searching for technical efficiency with lower costs and focusing on new products and services, though less strongly than prospectors (Zhang, 2020). Thus, analyzers are assumed to share the characteristics of these two strategies, considering the environment's risks and uncertainties.

Finally, unstable companies lacking response mechanisms to face environmental changes are classified as reactors (Miles & Snow, 1978), as they do not adapt to environmental changes and lack institutionalized practices to deal with management changes. For this reason, Miles and Snow (1978) note that this strategy is a residue, i.e., a company is classified as a reactor when none of the other three strategies is chosen.

Brazilian studies, such as Ghobril and Moori (2009) and Pletsch, Dal Magro, Silva, and Lavarda (2015), have addressed Miles and Snow's (1978) strategies. Ghobril and Moori (2009) investigated the dynamics of strategic alignment between goods, capital, and food industries. The results showed a significant relationship between the environmental context, and the organizations' structure and internal processes. They also highlighted how organizations develop according to the strategy adopted.

Pletsch *et al.* (2015) note that these strategies help to explain economic-financial performance measures, with prospectors tending to obtain higher returns on equity and better liquidity, while reactors present lower performance.

These Brazilian studies related Miles and Snow's (1978) strategies with performance and compared them with international research on the relationship between corporate strategy and capital structure. Therefore, this study revisits the concept proposed by Miles and Snow (1978) to argue that business strategy can impact and determine a company's capital structure.

2.3 Hypotheses

This study's hypotheses are based on the characteristics proposed by Miles and Snow (1978) to support the assumption that prospector and defender strategies impact a company's decision regarding whether to use its own or third-party resources to finance its activities differently. Despite the diverse existing strategies, Anwar and Hasnu (2016) argue that this structure is the most durable one, frequently examined, validated, debated, and supported by several researchers. Furthermore, the literature review performed by Anwar *et al.* (2021) revealed that the Miles and Snow (1978) typology is widely used in management, information systems, and business research, contrasting with the few studies in accounting and finance.

In line with Miles and Snow's (1978) typology, because prospectors consider advancements in innovation that impact strategic choices (Dobucsh & Kapeller, 2017) and the importance of the strategy and profit relationship (Cappa *et al*., 2019), they are more likely to explore market opportunities. On the other hand, Defenders choose to operate in a restricted niche; hence, it is a more predictable strategy.

Prospectors envision new products and markets (Miles & Snow (1978) and, for this reason, tend to present lower profitability and lower cash flows, as they tend to spend a significant volume of resources on research and development (R&D) (Bentley-Goode *et al*., 2019). Thus, they tend to exhaust their resources with R&D expenses and depend more on external financing. Therefore, prospectors are expected to have a capital structure mainly composed of third-party capital. Hence, the first hypothesis is proposed:

H1: Prospectors tend to more frequently depend on third-party capital to finance their activities.

Miles and Snow (1978) suggest that defenders can generate funds internally through their operations because their defensive behavior leads them to obtain market and product dominance and pay greater attention to efficiency. Hence, these companies tend to less frequently depend on third-party capital to finance their activities as they generate funds internally and seek to maintain their market share in which they operate efficiently.

Hence, defenders tend to prioritize internal financing as their operations enable them to generate funds internally. As they seek to dominate their markets, they may depend heavily on internal finance and debt (Myers, 1984), first choosing to finance their resources internally. Therefore, a defender's capital structure is expected to be mainly composed of equity capital. Hence, the second hypothesis proposes that:

H2: Defenders tend to more frequently depend on equity capital to finance their activities.

We chose not to propose a hypothesis for analyzers because these companies tend to balance equity financing. Because analyzers have attributes of both defenders and prospectors, they tend to stabilize their actions over time and establish a response pattern to the environment (Anwar et al., 2021). Additionally, considering each classification separately enables us to better understand each strategy's choice of capital without contaminating the analysis, as a classification that includes both types of strategy would, as is the case of the analyzer strategy.

When analyzing strategic choices, it is worth noting that environmental conditions determine organizational behavior and that the choices made by senior management come from the organizational process (Miles & Snow, 1978). In a more specific field, financial literature points out that a company's strategy is one of the factors likely to impact capital structure (Cappa *et al*., 2019).

3. Methodological Procedures

The study's population comprises Brazilian companies listed on Brasil, Bolsa, Balcão [B][3] and available in the Refinitiv Eikon database. There is specific legislation in Brazil addressing the mandatory minimum payment of dividends of 25% of adjusted net profit in publicly traded companies (Galvão, Santos & Araújo, 2018). However, we emphasize that there is a common practice of paying incremental payout in addition to the mandatory installment, which indicates a payment of dividends to shareholders above the mandatory amount. As a result, companies limit the resources generated in their operations since part of it is allocated to the mandatory payment of dividends.

Companies from the financial (190 observations) and the utilities (225 observations) sectors and those without a sector classification (35 observations) were excluded from the sample, besides companies that did not provide the information needed to calculate the variables (608 observations), and companies with negative equity (48 observations). The companies in the financial and utilities sectors were excluded due to specific regulations that would possibly lead to an analysis of results at the company level, which would not be comparable to that of other companies (Khedmati, Lim, Naiker & Navissi, 2019; Zhang, 2020). Additionally, companies without a sector classification were excluded because this information is necessary to determine business strategy. Hence, after exclusions, the sample remained with 440 publicly traded Brazilian companies observations.

An archival search was performed from 2015 to 2019. The variables' data started to be collected in 2010 when Brazilian companies were obligated to adopt the International Reporting Standards (IFRS). Considering 2010 was important to enable the analyses from 2015 to 2019, as information regarding the five previous years was needed to calculate the moving average of the business strategy variable. Therefore, it was essential to obtain accounting information from the five years before analyzing the six measures of the business strategy variable.

The explanation for considering the effects of fully adopting IFRS is based on Klann and Beuren (2018), who argue that companies experienced considerable changes in accounting between periods before and after the IFRS adoption. Therefore, the period prior to the adoption of IFRS is considered in this study because changes in balance sheets and income accounts might bias the results. Thus, data were collected since 2010 and analyzed from 2015.

The companies comprising the sample are distributed over the years in nine sectors, classified by the Global Industry Classification Standard (GICS), as shown in Table 1.

Table 1
Classification of the companies in the sample according to sector over the years

Sectors	2015	2016	2017	2018	2019	Total
Basic Materials	10	12	12	11	10	55
Consumer Cyclical	8	8	9	10	10	45
Non-Consumer Cyclical	21	22	22	24	22	111
Energy	6	6	6	6	6	30
Healthcare	7	7	7	8	8	37
Industrial	20	20	20	20	17	97
Real State	8	7	7	7	7	36
Technology	3	3	2	2	1	11
Telecommunication Services	4	2	3	5	4	18
Total	87	87	88	93	85	440

Source: Study's data.

Because the sample is characterized as an unbalanced panel, the number of companies analyzed each year varies from 85 to 93. Note that there were 440 observations over the five years. As for the sectors, consumer non-cyclical, composed of the subsectors agriculture, processed foods, beverages, and commerce and distribution of personal and cleaning products, is the most representative, with 111 observations. The least representative sector is technology, with 11 observations.

3.1 Study's variables

Table 2 presents the variables adopted in this study and their respective description, the calculation method, and the authors who supported each.

Table 2
Study's variables

Variable	Description	Calculation	Authors
		Dependent Variable	
Capital Structure (EC_{it})	It measures how much the company raised in third-party resources for each R$1.00 of its resources.	Passivo total dividido pelo patrimônio líquido	Adaptado de Cappa *et al.* (2019)
		Independent Variable	
Business Strategy (EN_{it})	It classifies the companies as prospectors or defenders	Ranking de seis variáveis*	Bentley-Goode *et al.* (2019)
		Control Variables	
Profitability (LR_{it})	It measures the asset's profitability	Net profit before extraordinary items divided by total assets.	Jaisinghani e Kanjilal. (2017); Cappa et al. (2019)
Size (TAM_{it})	It measures the company's size according to its revenue	Income's natural logarithm	Attar (2014); Cappa *et al.* (2019)
Risk (RIS_{it})	It measures the market's systematic risk according to the Beta	Relationship between asset returns covariance and market return variance.	Cappa et al. (2019)
Liquidity (LIQ_{it})	It measures current liquidity	Current assets divided by current liabilities	Pletsch *et al.* (2015); Cappa *et al*. (2019)
Tangibility (TANG)	It measures the level of tangibility	Fixed Assets divided by total assets	Henrique, Silva, Soares e Silva (2018)
Sector	It represents the company's main activity.	Dummies for each sector classified by the GICS Sector Code	Zhang (2020)
Year	It represents the period of analysis – from 2015 to 2019.	Year Dummies	Zhang (2020)

Legend: *Details of the ranking of the six variables are presented in Table 3.

The dependent variable, capital structure, analyzes the choice between equity or third-party capital resources. This measure was adapted from Cappa et al. (2019), who used it to check how many liabilities a company has, considering the total value invested in assets to represent the total debt to finance assets. Therefore, the ratio of third-party capital (total liabilities) to own capital (net equity) was a proxy to determine the relationship between business strategy and capital structure. Complementarily, the structure was analyzed considering assets. It follows that companies with higher liquidity ratios are likely more capable of meeting their obligations, resulting in greater financial leverage (Cappa *et al.*, 2019).

The dependent variable was based on Barton and Gordon (1987) and Andrews (1980) from the corporate strategy point of view. Note that the point of financing a company (debt *versus* equity) is linked to a functional financial decision that must support the long-term strategy. According to Andrews (1980), the main potential implication for financial economics in this case would be notes from senior management concerning the choice of a capital structure. Frank and Goyal (2009) warn that there is no optimal debt index based on the pecking-order theory. Barton and Gordon (1987) state that, regarding capital structure, financial economics has not agreed on the factors that may affect the selection of a specific leverage position.

The ranking developed by Bentley-Goode et al. (2019), based on the typology of Miles and Snow (1978) and used to classify companies as prospectors or defenders, was considered a proxy for business strategy. Table 3 explains the details of this variable.

Table 3
Details of the business strategy variable

Variable	Measure	Calculation	Expected
EN1	Development of new products	Proportion between R&D expenses and sales.	It is expected to be higher among prospectors investing heavily in R&D to locate and develop new product market opportunities.
EN2	Exploring new product market opportunities	Proportion between general, administrative, and sales expenses on sales.	It is expected to be higher among prospectors due to their significant investment in marketing activities.
EN3	Growth opportunity	Annual sales growth rate.	It is expected to be higher among prospectors exhibiting rapid and sporadic growth patterns as new product market opportunities become viable.
EN4	Production and distribution e	Proportion between the number of employees and sales.	It is expected to be higher among prospectors that do not achieve maximum production efficiency due to their focus on innovation.
EN5	Capital intensity	The ratio between fixed assets and total assets.	It is expected to be lower among prospectors due to low capital intensity to maintain flexibility in their ever-changing production lines.
EN6	Managerial stability	The standard deviation of the number of employees.	It is expected to be higher among prospectors because management tenure is shorter in these companies, and managers are often hired outside the company.

Source: adapted from Bentley-Goode et al. (2019).

The moving average was calculated for each of the six measures, considering the five years before the analysis period. Hence, data from 2010 to 2014 were used to calculate the moving average of the following years, from 2015 to 2019. The moving average of each of the six variables was grouped by quintile, considering each sector and year, and the quintile values were added to obtain a score for each company. The score ranges from 6 to 30, where the highest (lowest) levels concern prospectors (defenders). Note that the scale of the EN5 variable was inverted to create the score so that the fifth quintile represented characteristics of prospectors, as well as the others (Bentley-Goode *et al.*, 2019).

According to the study by Zhang (2020), the business strategy score was transformed into a binary variable, where 1 was assigned to the companies with scores above the median (16 points) and 0 otherwise; hence, (1) concerned prospectors and (0) defenders. For the additional tests, the business strategy score was separated according to percentiles: in the first case, 1 was assigned to the companies with scores above the 75th percentile (18 points) and 0 otherwise. In the second case, 1 was assigned to companies with scores below the 25th percentile (14 points) and 0 otherwise. These separations were used as sensitivity tests to identify companies that were strong prospectors (above the 75th percentile) or strong defenders (below the 25th percentile).

The control variables were based on Cappa *et al*. (2019), in which profitability, size, risk, and liquidity were considered variables that reflect factors specific to each company and affect the financial structure. The influence of profitability on companies' capital structure can be seen from the pecking-order or trade-off theory perspectives. The first suggests that more profitable companies prefer to finance their activities with internal resources for economic convenience and to reduce information asymmetry. The second suggests that higher profitability leads companies to prefer external resources due to tax benefits.

Regarding size, larger companies are assumed to depend less on third-party resources because they have lower transaction costs (Wald, 1999) and easier access to the capital market (Attar, 2014). On the other hand, larger companies have more tangible assets to ensure bank loans, so they also have higher debt (Coleman, Cotei & Farhat, 2016). Additionally, larger companies are less likely to default, which makes access to third-party capital more favorable (Cappa *et al*., 2019).

The risk variable reflects the total expected variation in future profits and is measured by the equity beta (Cappa *et al*., 2019). Risk is expected to affect a company's financial policy negatively, as the riskier the business, the higher its profit and cost-volatility relationship tends to be. The liquidity variable may influence capital structure, as higher liquidity generates a greater capacity to meet obligations, which might facilitate access to third-party capital. Finally, the tangibility variable was inserted into the model to explain the capital structure. As noted by Henrique et al. (2018), tangibility is a factor that enhances the expansion of third-party capital because it represents a form of payment guarantee.

3.2 Operationalization

Correlation and regression techniques were used to verify the impact of business strategies on the capital structure. Ordinal least squares (OLS) multiple linear regression was operationalized with year and sector fixed effect control. The econometric model is represented in Equation 1.

$$EC_{it} = \beta_0 + \beta_1 Strategy_{it} + \beta_2 LR_{it} + \beta_3 TAM_{it} + \beta_4 RIS_{it} + \beta_5 LIQ_{it} + \beta_6 TANG_{it} + \Sigma EFixed\ Effect_{Sector} + \Sigma EFixed\ effect_{Year} + \varepsilon_{it} \quad \text{(Equation 1)}$$

Standard tests were performed, using Durbin Watson for autocorrelation of residuals, White for homogeneity of residuals, and Variance Inflation Factor (VIF) for multicollinearity between the research variables to verify the OLS regression assumptions. The assumption of data normality was not tested because the central limit theorem is assumed given the number of observations; the data fits a normal distribution when there are many observations.

3.3 Additional tests

Propensity Score Matching (PSM) was performed as an additional test. This propensity score was developed by Rosenbaum and Rubin (1983) and generated weights for observations according to pre-selected criteria. In this study, the sample was separated into a treated group (prospectors) and a control group (defenders), and the propensity criteria comprised all control variables in addition to sector and year. This study's sample comprises 221 observations from prospectors, so the PSM chose another 221 observations from defenders to match. Because of fewer observations from defenders in the sample (219), the PSM repeats observations to compare to the treated group. The PSM sample comprised 442 observations.

An alternative proxy was used to measure capital structure. Frank and Goyal (2009) highlight that, according to the pecking-order theory, there is no optimal debt index based on information asymmetry. Both the pecking-order and the trade-off are based on market imperfections. Thus, a proxy that starts from the perspective of total debt to finance a firm's assets is used and compared with the book value, in line with Ferri and Jones (1979), Frank and Goyal (2009), Abdioğlu (2019) and Cappa *et al.* (2019). This additional measure is measured by dividing total liabilities by total assets, which determines how much resources (assets) are financed with third-party capital; the higher this index, the greater a company's dependence on third-party capital. Therefore, this variable was used to verify the robustness of the primary capital structure measure.

4. Analyses and Discussion of Results

Table 4 presents the companies classified according to business strategy, highlighting the number of companies classified as defenders and prospectors.

Table 4
Business strategy of sample companies by sector

Sectors	Total Sample		Prospectors		Defenders	
	No. Observations		No. Observations		No. Observations	
Cyclical consumer	45	10%	26	12%	19	9%
Non-cyclical consumer	111	25%	68	31%	43	20%
Energy	30	7%	16	7%	14	6%
Health	37	8%	14	6%	23	11%
Industry	97	22%	40	18%	57	26%
Real State	36	8%	14	6%	22	10%
Technology	11	3%	4	2%	7	3%
Telecommunication services	18	4%	12	5%	7	3%
Basic materials	55	13%	27	12%	28	13%
Total	440	100%	221	100%	219	100%

Note: sectors classified according to GICS.

Of the 440 observations, 221 were from prospectors, and 219 were from defenders. The percentage of prospectors and defenders is equivalent; for example, 12% of the companies in the basic materials sector concern defenders, while 13% are prospectors.

This analysis shows equivalence in the number of companies with different business strategies in relation to the general sample and specific sectors. It reveals that companies classify themselves as prospectors or defenders in all sectors (Miles & Snow, 1978). Therefore, this sample will likely generate consistent results, considering an equivalent number of companies with different business strategies.

Table 5 presents the descriptive statistics of the main variables.

Table 5
Variables' descriptive statistics

Panel A. Total sample					
	Mean	**Median**	**SD**	**25p**	**75p**
EC_{it}	4,6333	1,2928	22,0366	0,7205	2,7343
LR_{it}	0,0339	0,0335	0,0803	0,0005	0,0725
TAM_{it}	21,7180	21,5514	1,7718	20,4836	22,8287
RIS_{it}	0,8112	0,7800	0,5239	0,5000	1,0250
LIQ_{it}	2,0246	1,5855	1,5399	1,1747	2,3657
$TANG_{it}$	0,2529	0,2260	0,2059	0,0700	0,3923
Observations			440		
Panel B. T-test of means between groups of prospectors and defenders					
	Prospectors		**Defenders**		**t**
EC_{it}	6,7010		2,5466		-1,9838**
LR_{it}	0,0313		0,0365		0,6799
TAM_{it}	22,0940		21,3385		-4,5722***
RIS_{it}	0,8510		0,7710		-1,6042
LIQ_{it}	1,9388		2,1112		1,1746
$TANG_{it}$	0,2181		0,2880		3,6075***
Observations	221		219		

Note 1: significant at *0.10, **0.05, ***0.01 level.
Note 2: 25p = Percentile 25; 75p = Percentile 75.
Legend: ECit = capital structure; PROSPit = prospectors; LRit = profitability; TAMit = income natural logarithm; RISit = market systematic risk; LIQit = current liquidity.

Panel A's capital structure (ECit) variable indicates that the companies have R$4.63 of third-party capital on average for every R$1.00 of equity. However, the high standard deviation indicates extreme observations, mainly at the upper limit, raising the mean. The median shows that 50% of companies have less than R$1.29 of third-party capital for every R$1.00 of equity, revealing their lower dependence on third-party capital. These companies depend more heavily on their own capital than third-party capital, confirming the pecking-order theory proposed by Modigliani and Miller (1958; 1963). As Miles and Snow (1978) described, companies choose this cost of capital depending on their business strategy characteristics.

As for the other variables, the sample appears to be not very profitable on average. As for current liquidity, for every R$1.00 of current liabilities, the companies presented R$2.02 of current assets, indicating the existence of working capital and sufficient resources to pay off obligations. Finally, the tangibility variable indicates that for every R$1.00 in total assets, the companies presented R$0.25 in fixed assets.

Systemic risk, which concerns how vulnerable an asset is in the market, indicates that most companies have defensive assets. A systemic risk below 1 indicates that a company's shares do not closely follow market fluctuations, which occurs in approximately 75% of the sample. Prospectors increase risks to promoting product and market innovation (Rajagopalan, 1997). Variability may result in creditors demanding higher premiums to grant resources, hindering high-risk companies' access to third-party capital (Cappa *et al.*, 2019).

The t-test in Panel B comparing the variables' means of prospectors (221 observations) and defenders (219 observations) indicates that, on average, the prospectors are larger companies (TAM) with a lower level of tangibility than the defenders (TANG). As for the variable of interest, prospectors have a considerably higher average capital structure (CE) than the defenders. This preliminary result suggests that prospectors use more third-party capital than defenders.

Table 6 presents the Pearson correlation matrix (suitable for data normally distributed) between the main variables.

Table 6
Correlation Matrix

	EC_{it}	**$PROSP_{it}$**	**LR_{it}**	**TAM_{it}**	**RIS_{it}**	**$TANG_{it}$**
EC_{it}	1					
$PROSP_{it}$	0,0944**	1				
LR_{it}	-0,1106**	-0,0325	1			
TAM_{it}	-0,1643***	0,2134***	0,1077**	1		
RIS_{it}	0,0545	0,0764	-0,1309***	0,0189	1	
$TANG_{it}$	-0,0754	-0,1699***	-0,0701	0,1818***	0,0683	1
LIQ_{it}	-0,1086**	-0,0560	0,2734***	-0,2018***	-0,0475	-0,0872*

Note: significant at *0.10, **0.05, ***0.01 level.
Legend: ECit = capital structure; PROSP it = Prospectors; LRit = profitability; TAMit = income natural logarithm; RISit = market systematic risk; LIQit = current liquidity.

In the model presented by Equation 1, size (TAMit), profitability (LRit), and liquidity (LIQit) were negatively correlated with the capital structure proxy, suggesting that larger and more profitable companies with higher levels of liquidity less frequently use third-party capital.

Table 7 presents the results of Equation 1, the focus of this investigation. Two models are presented: model 1, described by Equation 1, and model 2, in which control variables were not considered.

Table 7
Results of the relationship between business strategy (median) and capital structure

Variable	Model 1 - EC_{it}			Model 2 - EC_{it}		
	Coefficient	t	β	Coefficient	t	β
Constant	75,2458***	4,45		-2,7546	-0,59	
$PROSP_{it}$	6,0873***	2,78	0,1382	5,2524**	2,47	0,1193
LR_{it}	-9,7789	-0,70	-0,0356			
TAM_{it}	-3,3111***	-4,69	-0,2662			
RIS_{it}	1,5423	0,69	0,0366			
LIQ_{it}	-1,6853**	-2,23	-0,1177			
$TANG_{it}$	-8,9956	-1,39	-0,0840			
EF Sector		Sim			Sim	
EF Year		Sim			Sim	
R^2		11,37%			5,06%	
R-Adjusted		7,58%			2,16%	
Maximum VIF		1,74			1,04	
DW		1,5519			1,5245	
White		0,0000***			0,0149**	
Observations		440			440	

Note 1: significant at *0.10, **0.05, ***0.01 level.
Note 2: Maximum VIF between the variables tests for multicollinearity. DW is the Durbin-Watson test for residue self-correlation. White is the test for homoscedasticity of the residuals.
Legend: EC = capital structure; β = Standardized Beta; Prosp. = Categorical variable, in which 1 represents prospectors, and 0 represents defenders; LR = Profitability; TAM = income natural logarithm; RIS = systematic market risk; LIQ = current liquidity; TANG = Tangibility; EF = Fixed effect.

The variable of interest (PROSPit) was positively and significantly related to capital structure (ECit) in both models (1 and 2). When the control variables were not considered, and only sector and year-fixed effects were controlled, prospectors appeared more dependent on third-party capital. Such a finding is reinforced by the significant results at the 1% level in model 1, in which the control variables increased the explanatory power of the model and isolated effects according to the company, rendering greater reliability to the results.

An additional analysis of the relationship between business strategy and capital structure, separating the business strategy scores according to 25th and 75th percentiles, was performed to confirm these initial results. Hence, the companies with extreme scores were classified as defenders or prospectors. Therefore, in model 3, 1 was assigned to companies with scores above 18 (75th percentile), and 0 otherwise. In model 4, 1 was assigned to companies with scores lower than 14 (25th percentile) and 0 otherwise. Table 8 shows the results.

Table 8

Results of the relationship between business strategy (percentiles 75th and 25th) and capital structurel

Variables	Model 3 - EC_{it}			Model 4 - EC_{it}		
	Coefficient	t	β	Coefficient	t	β
Constant	70,7647***	4,16		82,4931***	4,76	
$PROSP_{it}$	0,8523	0,36	0,0175			
$DEFEN_{it}$				-6,6223***	-2,89	-0,1441
LR_{it}	-12,4619	-0,89	-0,0454	-9.,554	-0,70	-0,0355
TAM_{it}	-2,9352***	-4,18	-0,2359	-3,4380***	-4,81	-0,2764
RIS_{it}	1,8912	0,83	0,0449	2,1271	0,95	0,0505
LIQ_{it}	-1,7459**	-2,29	-0,1220	-1,6919**	-2,24	-0,1182
$TANG_{it}$	-12,8832**	-1,99	-0,1203	-9,5009	-1,48	-0,0887
EF Sector		Sim			Sim	
EF Year		Sim			Sim	
R^2		9,77%			11,50%	
R-Adjusted		5,91%			7,72%	
Maximum VIF		1,71			1,71	
DW		1,5333			1,5575	
White		0,0000***			0,0000***	
Observations		440			440	

Note 1: significant at *0.10, **0.05, ***0.01 level.
Note 2: Maximum VIF between variables is the test for multicollinearity. DW is the Durbin-Watson test for the residual autocorrelation. White is the test for residual homoscedasticity.
Legend: EC = capital structure; β = Standardized Beta; Prosp. = categorical variable in which 1 represents prospectors, and 0 represents defenders; LR = Profitability; TAM = income natural logarithm; RIS = market systematic risk; LIQ = current liquidity; TANG = Tangibility; EF = Fixed effects.

Model 3 shows a statistically non-significant relationship between companies classified as prospectors and capital structure. It indicates that companies positioned between the median and the 75th percentile were responsible for a statistically significant relationship between prospectors and the decision to use third-party capital; the coefficient became non-significant when these companies were excluded from the analysis. These results diverge from evidence found in models 1 and 2, which shows that prospector companies tend to depend more heavily on third-party capital than defenders.

Regarding the control variables of models 1, 3, and 4, note that the signs and the level of statistical significance converge. More profitable companies depend more strongly on third-party resources, while smaller companies with low current liquidity tend to opt for this source less frequently.

Model 4 analyzes the relationship between the capital structure and companies classified as defenders. The results align with this study's theoretical assumption that these companies mainly depend on their resources. The negative and significant relationship at the 1% level between defenders and capital structure shows that the choice of the defender business strategy encourages companies to use third-party resources less frequently than prospector companies.

Table 9 presents the results of the PSM method and the replacement of the dependent variable by the alternative measure of capital structure. The model in the PSM method (Model 5) was operationalized with 442 observations, 221 from prospectors, and 221 from defenders. Then, the model was operationalized with all observations in the sample for the alternative capital structure proxy (Model 6).

Table 9

Results of the relationship between business strategy (median) and capital structure according to the PSM method and the capital structure alternative proxy.

Variables	Model 5 – EC (PSM)			Model 6 – EC alternativo (OLS)		
	Coefficient	t	β	Coefficient	t	β
Const.	75,6568***	4,24		0,5678***	13,14	
$PROSP_{it}$	4,2225**	1,97	0,09591	0,0575***	2,92	0,1317
PSM Criteria	**SECTOR, YEAR, TAM, LR, RIS, LIQ, TANG**					
Controls	Sim			Não		
EF Sector	Sim			Sim		
EF Year	Sim			Sim		
R^2	12,09%			16,83%		
R-Adjusted	8,34%			14,29%		
Maximum VIF	1,83			1,04		
DW	1,5454			1,5722		
White	0,0000***			0,0000***		
Observations	442			440		

Note 1: significant at *0.10, **0.05, ***0.01 level.
Note 2: Alternative EC = Total liabilities divided by total assets; Maximum VIF between the variables tests for multicollinearity. DW is the Durbin-Watson test for residual self-correlation. White is the test for residual homoscedasticity. Legend: β = Standardized Beta; Prosp. = Categorical variable in which 1 represents prospectors, and 0 represents defenders; LR = Profitability; TAM = income natural logarithm; RIS = market systematic risk; LIQ = current liquidity; TANG = Tangibility; EF = Fixed effects; R-Adjusted.

The control variables were not included in the OLS model when comparing the OLS and PSM models with the alternative measure of capital structure, as they showed that they were inversely correlated with the dependent variable. The results confirm the main analysis and show that prospectors more frequently rely on third-party capital. Hence, as hypothesized, by investing in new products and markets (Miles & Snow, 1978), prospectors tend to present lower profitability and lower cash flows due to more heavily investing in research and development (Bentley-Goode et al., 2019). Furthermore, the results concerning the alternative measure of capital structure tested by Model 6 are robust.

5. Discussion

The results using Miles and Snow's (1978) business strategies show that prospector companies use third-party capital more intensely, while defenders tend to rely more on their own resources. Such evidence regarding the companies addressed here suggests that business strategy impacts capital structure; the tests confirm the results' robustness.

Therefore, H_1 failed to be rejected. The notion that prospectors tend to rely on third-party capital to finance their activities more heavily was tested, and the results of the main analysis and PSM confirmed the hypothesis; as noted by Miles and Snow (1978), these companies tend to invest in new products and markets. H_2 also failed to be rejected, confirming that defenders rely on their capital to finance their activities more frequently. Hence, these findings suggest that these companies depend on their resources, decreasing the chances of using third-party resources.

Previous studies highlight that a company's strategy is one determinant of capital structure (Chkir & Cosset, 2003; Javorcik & Spatareanu, 2009; Jouida, 2018; Cappa *et al.*, 2019). However, such studies investigated the impact of differentiation, internationalization, and integration strategies on the capital structure. Thus, this study contributes to previous literature by shedding light on the impact of Miles and Snow's (1978) business strategy on the composition of Brazilian companies' sources of resources. These findings inform companies and their managers that a company's business strategic choice has an impact that goes beyond their market behavior and R&D spending, as it also impacts the composition of funding sources.

Hence, this study confirms the relevance of business strategy in forming a company's business model and determining company-specific factors, such as managerial decisions on the source of financial resources. As shown by H_1 and H_2, this depends on the company's business strategy and whether it chooses to depend more heavily on internal capital. Therefore, this study's main contribution is to highlight that prospectors and defenders tend to have different capital structure compositions due to debt financing choices.

A company chooses between internal or external financing depending on its classification. As reported in the literature, the capital structure combines a company's debt and equity to subsidize its investment and financing decisions (Kumar, Colombage, and Rao, 2017). Miles and Snow's (1978) business strategy paves the way for new investigations into organizations' practices to achieve objectives, and depending on the strategy, companies opt for cost control and different financing options. In addition to the factors determining the capital structure, the corporate strategy comes from the understanding that managers must be able to meet environmental conditions (Miles & Snow, 1978); one can infer that this capacity influences financing decisions.

6. Final Considerations

This study analyzed the relationship between Brazilian companies' business strategy and capital structure listed on Brasil, Bolsa, Balcão [B][3]. The results show that business strategy is related to capital structure. Prospector companies more frequently rely on third-party resources to cover their market expansion and extensive R&D expenses. These expenses imply lower profitability, thus requiring third-party capital. This situation is aggravated in the Brazilian context, where companies have limited resources due to the mandatory distribution of dividends. On the other hand, defenders seem to depend on their resources more heavily.

These findings reveal the importance of associating themes pertinent to management accounting (business strategy) and financial accounting (capital structure). This study highlights interfaces between these broad areas by showing that managerial decisions significantly impact financial information, which interests managers, investors, and shareholders.

These results contribute to the literature on business strategies and capital structure by showing that companies with different business strategies tend to structure their capital composition differently. The findings reveal that different strategies have different impacts on the capital structure of companies, which is reflected in the composition and cost of capital, even in companies that belong to the same context. Additionally, they contribute to the literature by showing that business strategy is one of the determinants of capital structure.

The contributions to the market include the information that a more aggressive capital structure (dependent on third-party capital) might result from an expansion strategy, as is the case with the prospector strategy. Potential investors might realize that the increased risk due to dependence on third-party capital is part of a business strategy aimed at a company's future growth. Considering that there is a strategy, investors may also feel more comfortable identifying this composition of capital structure. Note that in an emerging context, as is the Brazilian case, companies opting for innovation and expansion need to seek more capital from external sources.

This study's limitations underlying the results must be considered. First is the business strategy variable; the moving average of each was calculated considering the previous five years. Hence, future studies are suggested to calculate the mean by considering a more extended period. The second limitation is that the results change depending on how the business strategy scores are classified, possibly indicating a limitation of the companies in the sample. Although additional tests were performed to improve the results' reliability, future studies could investigate the relationships proposed here to confirm the results. Third, future studies may also insert the classification of companies into prospectors and defenders into econometric models to explain decisions regarding the use of third-party capital among Brazilian companies.

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