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Distribution of dividends and value of companies listed on B3

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Resumo

Objective: Based on the trend of international stock markets, it is suggested that companies that do not distribute dividends are better valued by the market than companies that make a small distribution of profits, while companies with larger distributions of dividends are better valued. This scenario in the literature has been described as Relation in "J-Shaped". In possession of this market aspect, this study aimed to identify whether there is the existence of the "J-Shaped" in the relationship between dividends and company value in the Brazilian capital market.

Method: A sample of 3,556 observations of 271 companies, in the period 1996 to 2018, was divided into non-dividend-paying companies (DIV0) and dividend-paying companies, the latter being divided into five groups classified according to the dividend distributed (DIV1 to DIV5). The analysis of the format of the relationship was carried out through the medians of the groups and statistical tests to establish the statistical relationship between the distributed dividend and the firm value (Tobin's q).

Results: It was found that the Brazilian market does not have the "J-Shaped". Thus, companies that do not pay dividends had worse values than those that distributed dividends to shareholders - with better valuations than those companies that distributed greater volumes of profits to stockholders. Additionally, the relevance of dividends in the value of companies in the Brazilian market was confirmed.

Contributions: The work advances in the discussion of dividends and firm´s value in Brazil by proposing a new statistical approach to the subject, categorizing companies by their distinct profit distribution policies and highlighting the pro-dividend clientele in the Brazilian market.

Keywords: Dividends; Firm Value; "J-Shaped".

How to cite

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Introduction

The existence or not of the relationship between distributed profits and the firm value is a matter commonly addressed in the field of applied social sciences (Zanon et al., 2017), and the distribution of profits to shareholders, treated here as dividends, is one of the more important management decisions, given that dividends compete for the same resources allocated to investment in new projects (Ehrhardt & Brigham, 2014; Santos & Galvão, 2015). Furthermore, they are the main focus of investors' attention during the process of analyzing their investments (Ribeiro, 2010). However, there is no apparent consensus on its implications for the value of companies (Baker & Weigand, 2015; Litzenberger & Ramaswamy, 1982).

Defending the relevance of dividends, which is their relationship to the market value of companies, Lintner (1956) is based on the belief that shareholders prefer stable profit distribution rates to fluctuating distributions in rates and terms. According to the aforementioned author, the market would establish a premium for shares that maintain distribution or growth stability. Gordon (1959), in turn, credits the valuation of shares of companies with greater dividend payouts to future risk aversion on the part of investors.

There are other approaches applied to explain the relationship of dividends on the value of companies. The Agency Theory (Jensen & Meckling, 1976), the clientele effect (Miller & Modigliani, 1961), the Tax Preference Theory (Elton & Gruber, 1970), the "Disposition Effect" (Shefrin & Statman, 1984) and, more recently, the Catering hypothesis (Baker & Wurgler, 2004), which brings more possibilities to understand the relationship between dividends and firm value.

The importance of knowing the relationship between dividends and the firm's value is mainly decision-making. Van Horne (1998) and Rappaport (2001) argued that the creation of shareholder value should be the main objective of company management. Van Horne (1998) also stated that value is represented by the market price of an ordinary share of a company, which is related to investment, financing and dividend decisions.

In this sense, the study of the relationship between distributed dividends and the value of companies is a recurrent theme in the finance literature, with different perspectives presented to analyze this issue. Litzenberger and Ramaswamy (1982), based on the expectation of future dividends, found evidence that stock appreciation is positively related to the distribution of dividends, and this relationship is non-linear. For the authors, the dividend yield contains informational characteristics that influence the expectation of future payments.

Baskin (1989) analyzed the direct and indirect influence of dividends on stock price fluctuations in the North American market. His conclusions pointed to the ability of the dividend alone to affect bond prices. This finding was also discussed in Fama and French (2001), who report a drop in the number of companies that distribute dividends in the American market, due to the growing number of small companies, with low profitability and good growth opportunities.

Pinkowitz et al. (2006) pointed out that the relationship between cash and company value is low in countries with less protection for investors, while the relationship between dividends and company value is weaker in countries with greater protection, corroborating the Agency Theory. The authors pointed out two components of protection for investors: "a legal rights component, whereby investors receive legal rights and an enforcement component, whereby the quality of a country's institutions determines the extent to which these rights are respected and enforced" (op. cit., p. 2726, our translation).

DeAngelo et al. (2008) concluded that the main drivers of the free cash flow distribution policy are the search for the reduction of information asymmetry in the market, agency costs and problems with measuring future risks. The authors also identified that issues of signaling to the market, demands from investors' clientele, tax benefits or investor behavior heuristics have less significance in the distribution of profits.

Forti et al. (2015) and Ferreira Júnior et al. (2010) pointed to factors related to the approaches of Lintner, Agency and company characteristics, as influencers in the decision to distribute dividends, confirming the existence of the relationship between dividends and value.

In turn, Silva Júnior and Machado (2015) sought to understand the dividend policy on the value of shares of companies traded in Brazil. The results allowed us to conclude that the Brazilian dividend policy is significant in determining the volatility of share prices, as the higher the dividend per share distributed, the lower the risk faced by the shareholder.

Given the above, a recurrent feature in studies of the dividend/value ratio is the use of statistical models aimed at the average of the samples or the relationship with the consideration of absolute values between total dividends paid and company value, which may favor limited and incomplete analyses. This feature is observed, for example, in the studies by Black and Scholes (1974), Naranjo et al. (1998), Fama and French (1998) and Pinkowitz et al. (2006). The effect of the presence of favorable and anti-dividend clienteles are not captured in this type of analysis (Kim et al., 2016). The implications of investor preferences regarding dividends tend to affect the extremes of the sample, that is, companies that do not distribute dividends or those that do distribute generous portions of profits to shareholders.

Given the above, it is clear that the relationship between dividends and company values is commonly analyzed through statistical procedures aimed at the average of the samples, a fact that is no different in studies on the Brazilian market. With the results of this literature already carried out, estimates are not projected on the values of the researched extremes, which limits the explanatory power of the analyses. Given the advocated by Miller and Modigliani (1961) and by Modigliani and Miller (1963), that profit distributions or retentions affect the values of securities by preferring immediate receipt for or future appreciation of shares, it is pertinent to point out the need to more comprehensive analyzes to advance the study of the theme, promoting new knowledge of the behavior of the Brazilian market, regarding the volatility of stock prices, in relation to the distribution of dividends.

Considering this scenario, Kim et al. (2016) found a "J-Shaped" relationship in the US market and in 12 other economies studied (except for Mexico). By dividing the sample into a group of non-dividend-paying companies (DIV0) and five groups of dividend-paying companies, proportional to the dividends paid (from DIV1 to DIV5), this "J-Shaped" was characterized by the highest value (obtained by Tobin's q) of the median of the group of non-dividend payers (DIV0) when compared to the group of payers of smaller dividends (DIV1), and of the growth of the median values of the groups gradually to that of the largest distributors of profits. The investigation by Kim et al. (2016) allowed to demonstrate the effect of dividend clientele, as advocated by Miller and Modigliani (1961) and by Black (1976).

Depending on the situation detected and described, the question that arises is: does the relationship between the segmentation of distributed dividends and the market firm´s value listed on B3 have the "J-Shaped"? This study aims to identify whether there is the existence of the "J-Shaped" in the relationship between dividends and the firm´s value in the Brazilian capital market.

The justification for this study is based on some perspectives, namely: its proposal to demonstrate the behavior of the sample in a segmented manner by the distribution of dividends (not considering only the total dividends). This demonstrates that there is a trend towards a non-linear relationship between dividends and company value, as this type of association is still a "puzzle" in the literature - since the value of companies is not only explained directly (or solely) by the dividends, but also by unobserved firm and market characteristics (leading to relational nonlinearity and explaining more clearly the expected stock volatility). This approach taken here is different compared to the studies by Galvão et al. (2019), Galvão et al. (2018), Zanon et al. (2017), Silva Júnior and Machado (2015), and Forti et al. (2015).

In this regard, it should be mentioned that the importance of analyzing the extremes is in line with the propositions of Miller and Modigliani (1961), that clienteles are determining factors in the volatility of stock value, and companies that distribute highs will be more affected. portions of dividends and those that do not distribute their profits, retaining them for new investments. Analysis studies of the central points of the samples would be incomplete to demonstrate these effects.

Furthermore, this study is different and justified by the peculiarities of the Brazilian market, such as the variation in interest in dividends in periods of inflation and stable in the economy, as well as the existence of informational assimilation that is still low in a developing market and the improvement in corporate governance (Procianoy & Verdi, 2003).

Furthermore, this study differs by proposing a complementary approach compared to Kim et al. (2016). Although the aforementioned study is considered as the basis here, it has not been literally replicated. There was an adaptation to the Brazilian context, with interest on equity, the way to calculate dividends and different independent control variables. Thus, different knowledge is added, as Kim et al. (2016) did a similar modeling for all countries and may not have considered the peculiarities of equity markets.

The contribution of this research, according to the results, is to indicate the non-occurrence of "J-Shaped"

in the Brazilian stock market. Unlike countries with a more developed market, including informationally, such as the Australian, Canadian, North American and French (tested in Kim et al., 2016), the evidence here is of the relevance of dividends, ratifying the interest of shareholders in having more benefits from profits and the clientele effect of dividends (and the "Disposition Effect"). The perception is that the firm's value is related to the effective distribution of dividends (and higher), and not to unobserved characteristics of firms that could maintain valuations even when profits are not distributed compared to lower dividends. In Brazil, normally, losses lead to non-distribution of dividends and no smaller dividends.

The relevance and/or social impact of this investigation lies in bringing knowledge about the non-linearity or uniqueness of the Brazilian market. Company managers may realize that distributed profits are important to shareholders, especially higher values. The non-distribution of dividends is still not "well regarded" by the market, which brings arguments for academia and companies to seek and provide more informative means about their activities. It is believed that Accounting is proposing this, mostly with the creation of "Not Generally Accepted Accounting Principles - GAAP" indexes and the improvement of statements, such as results.

2 Theoretical Framework

2.1 Relevance of dividends

Dividend distribution is a recurrent theme of studies in management areas due to its importance in decision-making (for example: Black, 1976; DeAngelo et al., 2008; Kim et al., 2016). This decision is linked to the possibility of reflections on the value of companies. Two approaches are at odds in this regard: relevance (Lintner, 1956; Gordon, 1963) and dividend irrelevance (Miller & Modigliani, 1961). Kim et al. (2016) emphasize that, despite the various findings, this relationship remains a "puzzle".

Miller and Modigliani (1961) argued that dividends are irrelevant to firm value. According to the authors, since the value of dividends is subtracted from the value of the shares at the time of disclosure, it is not enough to change its value. On the other hand, the investor himself can determine his return by trading shares he owns. Given the absence of taxes, Miller and Modigliani (1961) postulated that, even when faced with a 100% profit distribution, the investor could produce the desired return by selling and buying new securities (Kim et al., 2016).

However, Miller and Modigliani's (1961) assumptions are based on a perfect market scenario and rational investors. This point is criticized by Baker et al. (2002), for whom the relationship of dividends with the firm´s value can be influenced by market imperfections, informational asymmetries, conflicts of interest between managers and shareholders, transaction and flotation costs, and the irrational behavior of investors. Another factor contrary to the theory of irrelevance of dividends is pointed out by DeAngelo and DeAngelo (2006). For the authors, the main question of the theory, about higher dividend distributions resulting in overvalued shares, is not addressed in their analysis, as the joint effect of their assumptions is to demand 100% of the payment of free cash flow in each available period, making the smallest payments unfeasible.

Defending the relevance of dividends in the value of companies, Lintner (1956) stated that a stable dividend policy is the preference of managers. For the author, dividends would have a growth proportional to the sustained profit and managers would avoid cutting dividends, only doing so when the negative result is persistent, bringing an informational character to the dividend. In this sense, Beaver et al. (1997) and Ross et al. (2008) stated that one of the roles of dividends is to transmit information about the current situation and future expectations by companies, given that the expectation of dividends is associated with projected future flows.

On the other hand, the risk present in transactions can motivate investors to demand the return on invested capital as soon as possible. Thus, the importance of free cash distribution is given by investors' insecurity about the future. Therefore, shareholders will prefer dividend earnings. This is at the heart of the theory of shareholder dividend preference proposed by Gordon (1963). Allied to it, Lintner's (1956) postulates the "Bird in the Hand" Theory.

Other studies have pointed out reasons for the preference of shareholders to receive dividends. Shefrin and Statman (1984) credited the preference for dividends to the ingenuity of investors, working on a behavioral theory known as the "Disposition Effect". The fundamental difference between the assumptions of Lintner (1956) and Gordon (1963) and those of Shefrin and Statman (1984) lies in the purpose of demanding dividends since, for the former, the investor fears future uncertainties while the latter advocate the desire for resource consumption (Bezawada & Tati, 2017). Furthermore, Baker and Weigand (2015) pointed out the factors to defend the relevance of dividends: (i) the

clientele effect; (ii) the theory of Lintner (1956) and Gordon (1963); (iii) the hypothesis of informational content; (iv) tax preferences; (v) agency costs; (vi) the Life Cycle Theory and (vii) the Catering Theory.

Although their propositions were against the relationship between dividends and company value, Miller and Modigliani (1961) paid attention to the clientele effect, that is, to the portion of investors that prefers to receive dividends. Investors' predilection for higher proportions of dividends, regardless of the reason for preference, is taken into account by managers (Baker & Wurgler, 2004). However, the difficulty in knowing the clientele seems to be such that Black (1976) claimed to be virtually impossible to know with certainty which type of clientele is imperative.

The implications of investor preferences regarding dividends tend to affect the extremes of the sample, that is, companies that do not distribute dividends or those that do distribute generous portions of profits to shareholders. Considering this scenario, Kim et al. (2016) proposed a division of the sample according to the distributed dividend (where non-dividend-paying companies were grouped in the DIV0 group and the other companies, in ascending order of profit distribution, grouped in the DIV1 to DIV5 groups) showing a relationship in "J-Shaped" in the North American market and in 12 other studied economies (except for Mexico). This idea is represented in Figure 1.

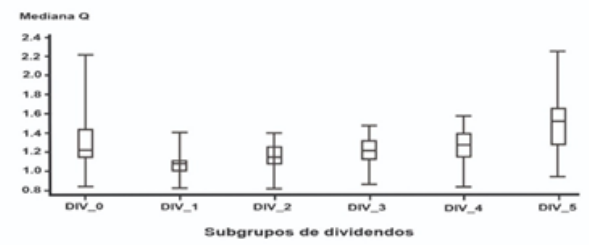

Figure 1. Relationship found by Kim et al. (2016) analyzing dividends and the firm value of US companies (represented by Tobin's q) between 1962 and 2012.

This "J-Shaped" was characterized by the higher median value of the DIV0 group of companies (obtained by Tobin's q) when compared to the group of payers of smaller dividends (DIV1), and the gradual increase in the median values of the groups that of the largest distributors of profits. The investigation by Kim et al. (2016), through Table 7 of that article, p. 34, allowed to demonstrate the effect of dividend clientele, as advocated by Miller and Modigliani (1961) and by Black (1976).

From the perspective of companies, Miller and Modigliani (1961) indicated the minimization of transaction costs, while Dhaliwal et al. (1999) and Moser and Puckett (2009) postulated about the tax deduction by companies as a factor in the decision to pay dividends. On the other hand, Ehrhardt and Brigham (2014) and Fama and French (2001) pointed to the life cycle and size of companies as a factor for the distribution of dividends. Ehrhardt and Brigham (2014) stated that mature companies with limited growth possibilities tend to distribute large portions of their cash flows to shareholders, as dividends or share buybacks. On the contrary, companies that present rapid growth opt for the retention and reinvestment of available cash in new projects, as explained by Fama and French (2001). In this sense, Fama and French (2001) report a drop in the number of companies that distribute dividends, in the American market, due to the growing number of small companies, with low profitability and with good growth opportunities.

Like shareholders, in Lintner's proposition, institutional investors also perceive that an increase in dividends is positively reflected in shares. However, they have a predilection for capital gains over dividends as remuneration (Farrelly & Baker, 1989). However, this predilection can be modified, for example, with changes in the taxation policy of dividends and capital gains (Ehrhardt & Brigham, 2014).

The distribution of dividends, in Brazil, has some peculiarities that differentiate it from the main markets. The non-taxation of dividends, interest on equity, the high concentration of shares and the government's market share are some of these differences. In addition, the market has a low number of companies trading, there are still two types of shares (dual class) in some companies and the market has low liquidity. Furthermore, there is a determination of a minimum proportion of the net income to be distributed, when there is no agreement in the company's Bylaws, and that increases in indebtedness generate a decrease in dividend payments in the present with an expectation of reversal in the future (Forti et al., 2015; Camargos et al., 2012; Loss & Sarlo Neto, 2006).

2.2 Agency Theory: Dividends and Firm Value (Share)

One of the ways proposed to reduce agency costs is the concentration of ownership, which would promote greater monitoring capacity by large investors vis-à-vis managers (Jensen & Meckling, 1976; Shleifer & Vishny, 1986). This would be reflected in the behavior of the market, which

would better price companies with higher shareholding concentration, as there would be less monitoring expenses (Marques et al., 2015). Lloyd et al. (1985) also postulated the benefits of concentration of ownership. The authors argued that ownership dispersion makes monitoring by insiders difficult.

The relationship between the Agency Theory and dividends is due to the reduction of resources in the hands of Agents (Jensen & Meckling, 1976; Gugler & Yurtoglu, 2003; Rodrigues & Ambrozini, 2016). This raises the share premium of companies that distribute higher proportions of dividends (Jensen & Meckling, 1976; Ehrhardt & Brigham, 2014; Rodrigues & Ambrozini, 2016).

In an investment situation, the company would need to go to the market to make new capital contributions. This would inhibit opportunistic actions by agents, given the greater evaluative capacity of shareholders (Baker & Powell, 1999; Easterbrook, 1984; Harada & Nguyen, 2006; Hardin & Hill, 2008; Holder et al., 1998; Lloyd et al., 1985). Thus, greater distribution of profits to shareholders would promote a better evaluation of companies due to greater ease in controlling agents by shareholders. However, the scarcity of resources in the long term and the low value of shares traded may indicate retention of profits as a choice by managers (Vancin & Procianoy, 2016).

2.3 Study hypotheses

Kim et al. (2016) concluded that the North American market, in addition to the other 12 analyzed economies (with the exception of Mexico), tend to "J-Shaped" in the distribution of dividends. In Brazil, the intention is for this to happen as well. However, the country has a market characterized by being formed by few companies, low liquidity of shares, speculative behavior and expressive state participation in significant companies, as well as the presence of legal characteristics such as mandatory minimum dividends and non-taxation on them, what makes it different from the main world markets (Camargos et al. 2012). Large companies find it easier to contract debt to invest in growth or diversification opportunities, making the trade-off of non-payment of dividends in view of a greater appreciation of shares, which is a factor in the promotion of non-companies. dividend payers (Kim, et al., 2016; Miller & Modigliani, 1961). However, in Brazil, there is also greater volatility and, therefore, greater risk, arising, for example, from the increase in the financial cost of indebtedness (Vancin & Procianoy, 2016), which would result in an aversion to companies that do not distribute cash flow to shareholders (Shefrin & Statman, 1984). Therefore, there is the first hypothesis of this study.

H_1: The Brazilian market presents a relationship between dividends and firm´s value similar to the international markets, featuring a "J-Shaped" relationship.

Despite the perception in the literature that the relationship between dividends and firm value is a "puzzle", in the Brazilian scenario, it can be stated that "the distribution of profits to shareholders impacts the pricing of the company carried out by the market, which allows for consolidation the significance of the dividend policy in the management of financial institutions operating in the domestic capital market" (Silva & Dantas, 2015, p. 53). Thus, the expectation of this research, according to findings in the international literature, is that the payment of dividends is seen by investors as an indicator of expectations about the company's future, generating more value (Lintner, 1956).

Furthermore, it is a guarantee of return on invested capital, reducing the risk promoted by market uncertainty (Shefrin & Statman, 1984). Studies on the influence of dividends on the value of companies in the country, despite some conflicting results (e.g.: Zanon et al., 2017; and Silva Júnior & Machado, 2015) and are still incipient when compared to developed markets (Martins & Famá, 2012), have in common the foundation of the relationship distributed profits and company valuation. Thus, the hypothesis is presented:

H_2: Dividends are directly related to the firm´s value in the Brazilian market.

3 Methodological Procedures

With a view to identifying whether there is the existence of the "J-Shaped" in the relationship between dividends and the firm´s value in the Brazilian capital market (Kim et al., 2016), active companies listed in B3 in the period were used 1996 to 2018. The choice for this period was due to the non-incidence of taxation of dividends, determined by Law 9,249 (Brazil, 1995) and by economic stability after the implementation of the Real Plan (Correia & Amaral, 2002). 3,556 observations were used (Table 1).

Data were obtained through collection in the Economática® database, with annual closing values. Information on market value, current assets, total assets, cash and cash equivalents, inventories, current and non-current liabilities, dividends paid, interest on equity, operating profit/EBIT, Profit Reserves, Net Sales Revenue, Return on assets (ROA), degree of financial and operating leverage, EBITDA and

shareholding composition.

Table 1. Composition of study data

Panel A – Sample composition			
Operationalizations	**Stock securities representing companies**		**Observations (N)**
(-) Financial sector stocks	**539**		**7.645**
(-) Dual class shares	122		1.536
(-) Exclusion	146		2.376
(=) Sample	-		177
(=) Amostra	**271**		**3.556**
Panel B – Sample by sector			
Economática® Sector	**Companies number**	**Observations**	**Observations participation (%)**
Agriculture and Fishing	5	42	1.18
Food and Beverage	12	154	4.33
Retail	18	231	6.50
Construction	23	254	7.14
Appliances	4	47	1.32
Electricity	40	620	17.44
Industrial Machines	6	88	2.48
Mining	4	43	1.21
Non-metallic Minerals	3	48	1.35
Others	54	552	15.50
Paper And Cellulose	4	75	2.11
Oil and Gas	10	122	3.43
Chemicals	10	126	3.54
Steel and Metallurgy	18	328	9.23
Software and data	5	24	0.68
Telecommunications	4	88	2.48
Textile	19	294	8.27
Transportation & Services	18	136	3.83
Vehicles & Parts	14	284	7.99
Total	**271**	**3.556**	**100.00**

Note. Source: Prepared by the authors.

It is also mentioned that data were obtained from 539 shares of preferred or common shares, which constitute the population of this study. From these, shares issued by companies categorized as banks, finance companies, holding companies and the like were excluded due to their statutory, regulatory, tax, operational and distribution of net income to shareholders particularities.

Furthermore, only one share per company was used, with those with the highest trading volume being selected within each annual period, in order to avoid duplication of data. Thus, 146 actions, with a total of 2,376 observations were excluded. Finally, observations that (i) did not show market value and (ii) did not have the dividend amount distributed were excluded. This exclusion comprised 177 observations.

Thus, the sample consisted of 271 shares from 271 companies, traded on the stock exchange over the period studied, and 3,556 observations.

With the above, the main model used is presented:

$$q_{it} = \beta_1 DIV_{it} + \beta_2 EBITDA_{it} + \beta_3 RETE_{it} + \beta_4 CV_{it} + \beta_5 ROA_{it} + \beta_6 TA_{it} + \beta_7 CASH_{it} + \beta_8 INV_{it} + \beta_9 AlaFIN_{it} + \beta_{10} EST_{it} + \beta_{11} DIVx_{it} + a + e_{it} \quad (1)$$

Where: i - companies; t - years; a_iis the specific invariant term of the regression; e_itis the regression residual error. In the regression, the panel data technique was used through the Stata software.

The dependent and independent variables used (and their relationships) in this study are described in Table 2.

Table 2. Variables used in this research, from 1996 to 2018.

Panel A – Dependent variable				
Variables	**Description**	**Formula**	**Expected relationship**	**Theoretical basis**
Tobin q	Firm Value	$q = VM^a + VD^b / AT^c$	-	Kim et al. (2016); Grando et al. (2016)
Painel B – Variáveis Independente e de Controle				
DIV	Distributed profit	$DIV_t = (Dividends_t + JSCP_t) / AT_t$	Positiva	Kim et al. (2016)
EBITDA	Operating profit volatility	$EBITDA_t - EBITDA_{t-1} / AT_t$	Positiva	-
RETE	Retained earnings	Profit res_t – Profit res_{t-1} / AT_t	Negativa	Kim et al. (2016)*
CV	Sales increase	Net sales res_t – Net sales res_{t-1} / AT_t	Positiva	Kim et al. (2016)
ROA	Return on assets	Economática Index	Positiva	Kim et al. (2016); Fama e French (2001)
TA	Total assets	AT_t	Positiva	Kim et al. (2016); Fama e French (2001)
CASH	Available cash	Available $cash_t / AT_t$	Negativa	Kim et al. (2016); Fama e French (2001)
INV	Investment	$INV = AT_t - AT_{t-1} / AT_t$	Negativa	Miller e Modigliani (1961); Fama e French (2001)
AlaFIN	Financial leverage	Economática Index	Negativa	Kim et al. (2016)
EST	Total stocks declared in the reports	$Stock_t / AT_t$	Negativa	-

DIVx	Classification by DIV leve	*Dummy: 1 for the analyzed DIV group and 0 for other groups*	-	Kim et al. (2016)

*Note. Source: Prepared by the authors. *Used with formula adaptations.*
[a]VM is the market value of the company's shares. [b]VD is the firm´s value debts.[c] AT = the company's total accounting asset.

The q index allows the firm's value to be represented by a comparable magnitude between different firms, reducing distortions caused by the use of monetary values, for example. The calculation of the q index was performed for each company in each year observed, according to Kammler and Alves (2007).

The DIV formula describes the calculation used to size companies according to their distribution of profits to shareholders (Cf. Kim et al., 2016). The division by total assets aims to eliminate disparities in the use of nominal values. It is important to highlight that, for the present work, the distribution of profits to shareholders, both through dividends and through interest on equity, was named as "dividends".

In the variable DIV, the results were categorized according to the distribution or not of annualized profits. The values of non-dividend-paying companies in the sample were grouped under the name DIV0. The remainder, composed of profit-distributing companies, was divided into quintiles (Kim et al., 2016). For this, an increasing classification was used, ordered by the DIVt value found. In this way, companies that paid smaller portions of dividends were grouped in the bottom quintile, classified as DIV1. Companies that distribute the highest proportions of profits to shareholders are classified as DIV5, occupying the top quintile. DIV2, DIV3 and DIV4 groups are also proportional to the payments. With these data, it was possible to know the shaped of the distribution of dividends in the value of companies.

4 Results and Discussion

First, descriptive statistics are highlighted, through which the shaped of the ratio of dividends x value of companies in the Brazilian market was evidenced (Table 3).

Table 3 - Descriptive statistics of the independent and dependent variables of the DIVx Groups

DIVx	Statistics	Tobin q	DIV	EBITDA	RETE	CV	ROA
DIV0	Minimum	0,0545	-	- 1,2077	- 0,1260	- 1,2706	- 221,5088
	Mean	0,8838	-	0,0056	- 0,0010	0,0148	- 11,8706
	Median	0,5903	-	0,0047	-	0,0181	- 2,9951
	0.25-0.75	0,5397	-	0,0919	-	0,1231	14,2997
	Standard deviation	1,2023	-	0,2658	0,0272	0,2177	32,9196
	Maximum	9,2604	-	1,1544	0,1380	0,6280	36,3095
DIV1	Minimum	0,1341	0,0000	- 0,1792	- 0,1286	- 0,3033	- 21,1731
	Mean	0,7509	0,0033	0,0089	0,0016	0,0644	0,3823
	Median	0,6310	0,0029	0,0099	0,0006	0,0474	1,0472
	0.25-0.75	0,4312	0,0044	0,0497	0,0193	0,1275	3,7825
	Standard deviation	0,5579	0,0027	0,0589	0,0311	0,1407	5,0417
	Maximum	4,1443	0,0114	0,1976	0,0959	0,6681	16,8623
DIV2	Minimum	0,1885	0,0034	- 0,1410	- 0,0996	- 0,3447	- 11,1990
	Mean	0,8828	0,0113	0,0128	0,0161	0,0817	3,6121
	Median	0,7401	0,0107	0,0120	0,0164	0,0638	3,5600
	0.25-0.75	0,5188	0,0055	0,0447	0,0323	0,1360	3,7828
	Standard deviation	0,5367	0,0044	0,0500	0,0367	0,1404	3,8069
	Maximum	3,0659	0,0255	0,1989	0,1332	0,5180	13,8863
DIV3	Minimum	0,2302	0,0098	- 0,2299	- 0,1110	- 0,3158	- 14,5911
	Mean	0,9799	0,0205	0,0113	0,0212	0,0830	5,4928
	Median	0,8207	0,0194	0,0151	0,0208	0,0610	5,6031
	0.25-0.75	0,5725	0,0073	0,0533	0,0434	0,1333	4,6532
	Standard deviation	0,5709	0,0062	0,0566	0,0463	0,1496	4,6582
	Maximum	3,2933	0,0394	0,1540	0,2141	0,6700	18,1804
DIV4	Minimum	0,2299	0,0192	- 0,1648	- 0,1410	- 0,3666	- 10,3817
	Mean	1,2347	0,0358	0,0151	0,0243	0,0858	7,6509
	Median	1,0181	0,0339	0,0168	0,0233	0,0649	7,2964
	0.25-0.75	0,8142	0,0135	0,0463	0,0504	0,1287	5,9545
	Standard deviation	0,8108	0,0105	0,0520	0,0481	0,1435	5,0025
	Maximum	4,7768	0,0648	0,1597	0,1568	0,6598	19,9896
DIV5	Minimum	0,3111	0,0308	- 0,2845	- 0,2123	- 0,3950	- 1,4071
	Mean	1,6387	0,0962	0,0169	0,0161	0,0818	11,4203
	Median	1,2804	0,0800	0,0182	0,0077	0,0608	10,5596
	0.25-0.75	1,1155	0,0577	0,0576	0,0516	0,1110	7,0497
	Standard deviation	1,1430	0,0648	0,0693	0,0643	0,1377	5,8518
	Maximum	6,0801	0,4878	0,2154	0,2806	0,6144	29,6735

DIVx	Statistics	TA	CASH	INV	AlaFIN	EST
DIV0	Minimum	3,9341	-	- 3,5821	- 180,4423	-
	Mean	5,8250	0,0620	- 0,0269	3,3318	0,0924
	Median	5,8497	0,0245	0,0337	0,7668	0,0678
	0.25-0.75	1,0654	0,0683	0,1883	5,6622	0,1414
	Standard deviation	0,7542	0,1119	0,4713	39,5382	0,0975
	Maximum	7,3092	0,7412	0,7238	239,6431	0,4053
DIV1	Minimum	4,6957	0,0002	- 0,3825	- 51,6662	-
	Mean	6,4530	0,0754	0,0982	1,7315	0,1049
	Median	6,4727	0,0599	0,0699	1,0675	0,0951
	0.25-0.75	1,1162	0,0835	0,1578	1,7823	0,1660
	Standard deviation	0,7990	0,0663	0,1775	15,7443	0,0976
	Maximum	8,2380	0,3016	0,7012	135,4344	0,3674
DIV2	Minimum	4,8449	0,0011	- 0,3603	- 13,4053	-
	Mean	6,4440	0,0772	0,1236	2,6626	0,1098
	Median	6,4437	0,0563	0,0880	1,6135	0,1029
	0.25-0.75	1,1146	0,0754	0,1558	1,2527	0,1654
	Standard deviation	0,7363	0,0653	0,1776	8,2222	0,1044
	Maximum	8,1400	0,2936	0,7308	68,1748	0,4202
DIV3	Minimum	4,7875	0,0009	- 0,2666	- 10,1463	-
	Mean	6,4402	0,0874	0,1091	1,8954	0,1103
	Median	6,4363	0,0637	0,0891	1,6996	0,0956
	0.25-0.75	1,0597	0,0988	0,1439	0,9946	0,1667

	Standard deviation	0,7433	0,0729	0,1488	2,4949	0,1090
	Maximum	8,4656	0,3426	0,6476	15,4050	0,4282
DIV4	Minimum	4,7397	0,0009	- 0,3214	- 6,3088	-
	Mean	6,4312	0,1017	0,1052	1,8269	0,0914
	Median	6,5057	0,0785	0,0954	1,7435	0,0729
	0.25-0.75	1,2021	0,1141	0,1250	0,9788	0,1414
	Standard deviation	0,8001	0,0877	0,1313	1,8573	0,0988
	Maximum	8,4264	0,4121	0,5416	10,8507	0,4114
DIV5	Minimum	4,5065	0,0004	- 0,5991	- 5,6650	-
	Mean	6,3514	0,1029	0,0710	1,8337	0,0652
	Median	6,4250	0,0757	0,0684	1,7940	0,0116
	0.25-0.75	0,8998	0,1135	0,1486	0,8968	0,1183
	Standard deviation	0,7285	0,1132	0,1575	1,2589	0,0842
	Maximum	7,8760	0,7249	0,6951	5,0405	0,3653

Note. Source: Prepared by the authors.

Of the total sample analyzed, in 31.16% of the events (1,108 observations) the distribution of dividends was not perceived. This reveals that there is a significant portion of companies trading, whose market value cannot be explained by the influence of theories about dividends. Furthermore, DIV0 becomes the largest of the analyzed groups, in terms of number of observations. The groups between DIV1 and DIV4 are formed by 490 observations each, while the DIV5 group has 488 observations.

The analysis of the q medians of the groups reveals that the Brazilian firm´s value is lower than the q value of American companies and companies from other countries in the study by Kim et al. (2016). It seems reasonable to infer that particularities of the Brazilian market such as the presence of the government (market regulator) as a shareholder in significant companies (Carvalho & Ribeiro, 2019), high concentration of shares held by the majority (Vancin & Procianoy, 2016), low liquidity of bonds (Nogueira et al., 2021) and their speculative nature of trading, may be motivating for the observed low value indices.

The ROA variable was highlighted to characterize the market behavior in relation to the distribution of dividends. The DIV0 group was not only composed of companies with negative or zero net results, although the values of interest (mean and median) are negative. Of the total of 1,108 observations, 389 events, or 35.11% of the group, presented positive ROA. This result is in line with the reports by Vancin and Procianoy (2016) on the retention of profits in the Brazilian market. However, the analysis of the reasons for this scenario is not relevant to the objectives of this work. For the other groups, there is a positive variation in the ROA values in relation to the DIVx groups,

It should also be noted that the values of Tobin's q, inventories, cash, operating leverages, EBITDA(s), investments, retained earnings, growths in sales, get bigger the more companies distribute dividends – mainly from DIV3. This scenario can be explained by the cycle of distributing dividends and obtaining market returns, bringing more possibilities for resources. Furthermore, the managers themselves seek to maintain adequate business structures for interests with higher variable remuneration.

When analyzing the behavior of groups, the median values of q are greater as the groups progress. In other words, the DIV0 group has the lowest median value of companies, while the DIV5 group has the highest value. In addition, DIV5 is also the group with the highest q value (mean or median), the longest interquartile range and the highest standard deviation for this variable, among the groups studied. The extreme groups (DIV0 and DIV5) showed the greatest dispersions in the q value, as observed by the standard deviation values. This behavior, for the group of non-dividend payers, can be attributed to the greater number of contained observations. For the DIV5 group, this behavior can be explained by the policy of maintaining the payment method and payout levels, adopted in the Brazilian market (Galvão et al., 2018), which is now interpreted by the investor as a constant remuneration on the capital invested, reducing the investment risk, in addition to signaling the company's future projection to the market (Beaver et al., 1997; Gordon, 1963; Lintner, 1956; Ross et al., 2008). Still, it is inferred that the presence and maintenance of the generous distribution of dividends would override the analysis of other variables by investors, causing the analyzed behavior of greater dispersion of q values in the DIV5 Group.

The analysis of the medians of the DIVx groups does not characterize the format of the distribution of dividends in Brazil as "J-Shaped" (Figure 2). On the other hand, the behavior is similar to that described in Mexico, with the group of companies that do not distribute dividends (DIV0) being evaluated worse, by analyzing the median, than the group of companies with the lowest distribution (DIV1). Both markets have similarities: they are Latin markets, in developing countries, with low representation of companies trading on the open market, they are speculative markets and do not have taxation on dividends. Of these characteristics, the non-taxation of dividends occurs in six other countries which reported a higher value for the DIV0 group compared to DIV1 (Kim et al., 2016). The other similarities are behavioral and social characteristics, in which the analysis is not within the scope of this research.

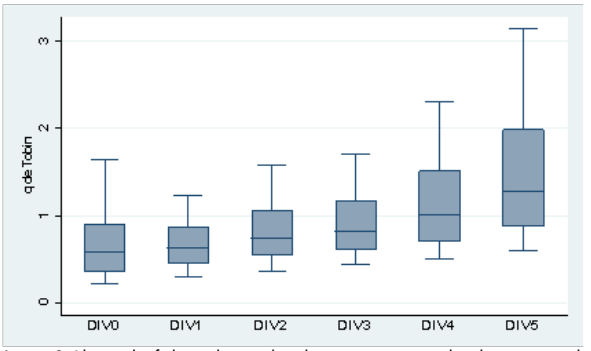

Figure 2 Shaped of the relationship between DIV and Tobin's q, in the Brazilian market, by DIVx group, from 1996 to 2018.
Note. Source: elaborated by the authors. Due to the massive presence of outliers, just for illustrative purposes, the data used for the presentation of the box-plot charts were winsorized by 10% at each end. However, the values of the lower and upper quartiles and the medians were not affected.

There are signs that demonstrate the importance of dividends in the firm's value, given that the group of companies that do not distribute dividends to their shareholders is the one with the worst assessment of the median, with a type of relationship more similar to a linear relationship, when analyzing the medians of the groups in Figure 3. In this way, the H1 hypothesis is rejected. Thus, evidence of the relevance of dividends in the firm´s value in the Brazilian market is strengthened. This behavior may arise from the uncertainty of the market's future, according to Lintner (1956) and Gordon (1963), from signaling to investors, by maintaining the rates and periodicity of dividend distribution in the Brazilian market (Galvão et al., 2018), investor preference for the consumption of the dividend (Shefrin & Statman, 1984), or for the attractiveness of interest rates outside the market, according to Lintner (1956).

Furthermore, it can be related to Shefrin & Statman's (1984) postulates, according to which investors' preference for dividends tends to increase with age. Of the total number of Individual investors on the Brazilian stock exchange, 46.90% are over 46 years old, holding 82.82% of the total resources invested in 2018 (B3, 2018). In addition, the higher payment of dividends is seen as mitigating the agency's problems arising from shareholding concentration in the Brazilian market (Galvão et al., 2019).

4.1 Relationship between dividend distribution and firm value

The analysis was performed with a regression with fixed effects with clustered robust standard error, with panel data, according to the results of the Chow, Breusch-Pagan and Hausmann tests, to obtain the analysis of the entire sample and the effect of groups on the q value of companies (Table 4).

Table 4. Results of the relationship between dividends and the firm´s value listed on B3, from 1996 to 2018

Dependent Variable: Tobin q	Coefficients and p values		Robust Standard Error
DIV	2,1917**	(0,036)	1,0413
EBITDA	- 0,3634	(0,122)	0,2344
RETE	1,7350***	(0,000)	0,4684
CV	0,4088***	(0,000)	0,1097
ROA	0,0020	(0,756)	0,0066
TA	- 1,1188***	(0,001)	0,3361
CASH	0,6163*	(0,100)	0,3735
INV	- 0,1356	(0,445)	0,1773
AlaFIN	- 0,0006	(0,139)	0,0004
EST	0,5738	(0,360)	0,6255
DIV1	0,0943*	(0,071)	0,0519
DIV2	0,1428**	(0,037)	0,0680
DIV3	0,1257*	(0,076)	0,0704
DIV4	0,2222***	(0,006)	0,0797
DIV5	0,2086*	(0,053)	0,1072
Cons.	8,0342***	(0,000)	2,1497
N	1.831	**Groups**	234
R^2	**Geral** 0,1529	**Prob.>F**	0,000
	Between 0,0453	**F(15.233)**	6,87
	Overall 0,0595		

*Where: **Tobin's q** is the ratio between the market value of shares and the value of a company's total debt divided by its total assets; **DIV** is the total amount of dividends and interest on equity distributed by a company in year t, divided by its total assets; **EBITDA** is the difference between two years [t -(t-1)]of a company's EBITDA, divided by its total assets in year t; **RETE** is the difference between two years [t -(t-1)] of a firm's profit reserve, divided by its total assets in year t; is the difference between two years [t -(t-1)] of a company's EBITDA, divided by its total assets in year t; **CV** is the difference between two years [t -(t-1)] of a firm's revenue, divided by its total assets in year t; **ROA** is the company's return on assets in year t; **TA** is the log of a firm's total assets in year t; **CASH** is the ratio of a company's total availability to its total assets, in year t; **INV** is the difference between two years [t -(t-1)] of a firm's total assets, divided by its total assets in year t; **AlaFIN** is a company's financial leverage in year t; **EST** is the ratio between the declared inventories and the total assets of a company, in year t; **DIV1-5** are dummy variables that indicate the groups of DIVx dividend payers.*
***Note.** Source: elaborated by the authors. Significance: 1% (***), 5% (**) and 10% (*).*

The results obtained confirm the existence of a statistical difference between the DIVx groups. Keeping all other variables unchanged, the average value of companies paying dividends is higher than that of companies not paying dividends (DIV0, considered as the basis for the dummies of DIVx groups). Also, note that DIV2 is superior to the suppressed group and that DIV4 is superior to DIV2. In addition, there is statistical significance and a positive relationship between the variable DIV and Tobin's q firm value. Therefore, the conclusion is not to reject hypothesis H2, of a direct relationship between

dividends and the value of companies. Therefore, a payment of higher dividends, ceteris paribus, generates an increase in the value of companies, as already reported in Baskin (1989) and Gentry et al. (2003) and on the postulates of Lintner (1956) and Gordon (1963), Shefrin and Statman (1984) and Ehrahrdt and Brigham (2014).

The explanation of the best assessment of the groups is linked to the direct relationship of dividends with the value of companies. This explains, therefore, the value relationship found between the DIVx groups. Companies that do not distribute dividends (DIV0) are rated the worst by the market, while even companies with small dividend distributions (DIV1 and DIV2) are rated better. At the other extreme of the analysis, companies that make the largest proportional distribution of profits to shareholders (DIV5) have the highest value.

This relationship of preference for dividends can be explained by the decrease in risk and future uncertainty with the return on investment (DeAngelo et al., 2008; Gordon, 1963; Lintner, 1956); by the preference of dividends for immediate consumption, showing a clientele for dividends (Bräuer et al., 2020; Shefrin & Statman, 1984), or by the gain above market interest (Lintner, 1956). Furthermore, the age characteristic corroborates the postulates of Shefrin and Statman (1984). Therefore, the explanation that there is an evident presence of behavioral issues permeating the preference for dividends is reinforced, as already pointed out by Miller and Modigliani (1961) and Baker and Weigland (2015).

Another point that reinforces the preference for dividends is the result of Loss and Sarlo Neto (2006), who claim that Brazilian companies do not change their dividend policy in view of the need for investments, avoiding the reduction or cessation of fixed returns for shareholders. Kim et al. (2016) noticed this finding in Mexico, a country with a stock market similar to the Brazilian one. Galvão et al. (2018) confirmed the 2006 study - companies tend to maintain a stable payment of 25% of net income as minimum dividends, to ensure shareholder presence and market valuation. The companies also avoid changing their dividend policy, maintaining the form of remuneration and the level of payout.

The positive and significant relationship of VC highlights the relationship between sales growth and the valuation of companies, which can be interpreted as growth opportunities (Ehrhardt & Brigham, 2014), as a positive reflection of past investments or as a sign of value creation for the shareholders (Rappaport, 2001). This relationship can also denote a mitigation of agency conflicts, and this can be a proxy for the company's growth, requiring external funding and subject to market evaluation (Baker & Powell, 1999; Easterbrook, 1984; Harada & Nguyen, 2006; Hardin & Hill, 2008; Holder et al., 1998; Lloyd et al., 1985), although this possibility seems to conflict with the results of the RETE variable.

The RETE variable presents a positive relationship, signaling an investor's predilection for firms that retain part of their result, instead of distributing it to partners. One interpretation is that profit retention is a trend of Brazilian companies, as Vancin and Procianoy (2016) described, given the scarcity of resources available for funding. Therefore, since this is an expected market behavior, this variable would not provide elements to understand the phenomenon analyzed. Thus, it is also inferred that there is no evidence of the distribution of dividends as a control mechanism for agency conflicts (Vancin & Procianoy, op. cit.). This result is opposite to that reported by Silva and Albanez (2017), for which companies with higher profit retention for reinvestment were not efficient in creating value for shareholders through investments.

TA presents a relationship contrary to that reported in the literature (Silva Jr. & Machado, 2015; Allen & Rachim, 1996). It was believed that larger companies would be perceived as those with less investment opportunities, distributing their profits as dividends, which would raise their market value, and this relationship is described with dividends in the literature (Santos & Galvão, 2015; Fama & French, 2001). One explanation for the negative relationship observed would be the expectation of future earnings from smaller companies and, therefore, with greater growth opportunities, as reported in the study on the distribution of dividends by Fama and French (2001), in the same way as in the work on the pricing of American companies, by Kim et al. (2016), which would corroborate the theory of Miller and Modigliani (1961). Another interpretation would be that investors would be looking for more efficient companies that could achieve greater productivity and profitability with fewer available resources.

Two points, however, do not support this argument. First, it is clear that, unlike the American market, where there is a change in the scenario, with the introduction of smaller companies (Fama & French, 2001), there is no significant variation in the size of companies in the period studied. Also, the acceptance of the efficiency argument is rejected when the highest ROA (0.756) and EBITDA (0.122) score is noted, which demonstrates that there is no statistical significance between these variables and the firm´s value, for the present study model adopted.

5 Final Considerations

The results showed that firm´s that do not distribute portions

of their profits to stockholders are rated worse by the market, while group valuations are better when there are higher dividend distributions. The data allowed the rejection of the H1, with the non-existence of the "J-Shaped" in the Brazilian market. This finding may indicate the presence of a market that does not absorb information or unobservable characteristics of companies, not currently valuing the non-distribution of dividends as an opportunity for future gain. In more developed markets, such as the North American, the "J-Shaped" occurs, as a possible confidence that the dividends will return or will be even better than those previously distributed.

After confirming the rejection of H1, a regression with panel data was performed for the DIVx groups. The results obtained allowed us to affirm the existence of a significant and positive statistical relationship between dividends and firm´s value in the Brazilian market, not rejecting H2, in addition to demonstrating that there is a scaling of values between groups, as demonstrated by descriptive statistics. However, the idea remains that the national market values dividends and positive results, while negative ones can be seen as insufficient conditions for companies. In Brazil, any dividend amount seems to confirm the clientele effect and the "Disposition Effect".

The relevance of dividends in the firm´s value is also explained by the uncertainty regarding the future of investments, as postulated by Lintner (1956) and Gordon (1963), the preference for immediate consumption, in addition to the behavior factor by age, as proposed by Shefrin and Statman (1984), competition for investment with external interest-paying sources, such as financial investments or government bonds, according to Lintner (1956) and issues of misuse of resources by managers, according to the Agency Theory, by Jensen and Meckling (1976). In Brazil, market efficiency is still low, as well as there is a high tendency for shareholders to incorporate information with high earnings management, giving low relevance to companies that do not distribute dividends, leading to undervalued valuations in some situations.

This research is contributory because it considers the presence of firm´s with different profit distribution policies, analyzing them from the perspective of dividend theories. Furthermore, new methods of analysis of the dividend and value relationship are presented, through sample segmentation. With that, there was the idea that the "J-Shaped" could occur in the country's stock market. However, the logic remains that the dividend matters to the shareholder when valuing the firm's shares. This finding may not recognize the intangibles, for example, that companies have and will be able to generate favorable values in the future. So, in the results of this research, not distributing dividends seems to indicate that there is usually a recurrent association with losses.

It is mentioned that the Brazilian stock market is still small and new compared to other developed countries. However, elements such as non-taxation of dividends and interest on equity bring differences and may, somehow, not cause different perceptions of not distributing smaller or larger profits and dividends. In this scenario, it could perhaps be argued that the country's information environment is still evolving or that shareholders fail to consider important information (or under-price it). It is believed that with the adoption of the International Financial Reporting Standards (IFRS) and the possible tax reforms that will affect dividends, "J-Shaped" may occur.

In complementary words, as a contribution, it is argued that markets such as Brazil follow the trend of dividend relevance, as verified by Kim et al. (2016) in Mexico. Nations like this are characterized by shareholders with short-term demands, immediacy (but usually risk-averse), and unplanned or expected long-term.

Despite the advances described, there are limitations. First, it is based on quantitative data, which does not allow the description of investor behavior regarding dividend policies. Furthermore, there is the limitation of non-generalization, which makes the study restricted to a specific type of observation and analysis. Finally, there are data limitations, notably for pre-1996 periods, which reduced the sample and, consequently, the findings. However, these difficulties do not invalidate the research.

Therefore, there are fertile fields of studies for the subject. The study suggestions include qualitative-quantitative research, which can relate the statistical findings to the behavioral analysis of investors and managers. It is also recommended the use of other variables to interpret the relationship, and the exclusive analysis of companies that do not distribute dividends.

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