Stock options: do they influence dividend payments?

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Received 12 June 2020
Revised 31 July 2020
2 January 2021
22 June 2021
Accepted 5 September 2021

Abstract

Purpose – This study aims to investigate whether there is any influence of the option plan to purchase shares protected from dividends to determine the distribution of dividends in Brazilian companies.

Design/methodology/approach – The authors used a Tobit dynamic and regressive regression model because their sample has an index higher than 30% of companies that do not pay dividends. The sample includes companies that pay dividends or not and pay their executives with executive stock option plans and is composed of 1,990 observations from 356 companies from 2010 to 2016.

Findings – The results indicated that the presence of a dividend protection clause has a positive association with the distribution of dividends. The authors sought to clarify that companies with a stock option plan protected by the distribution of dividends face fewer restrictions on the distribution of dividends. The authors found that most companies still use only stock options to benefit middle-ranking positions and fit the plan in their remuneration policy. The monitoring of these plans lasts an average of seven years, and specific acquisition conditions are not established with their beneficiaries, who must remain in the company and observe performance metrics.

Originality/value – This study is relevant because the relationship between dividends and stock options has not yet been analyzed in Brazil, especially concerning a dividend-protected option plan, which is a relatively recent modality, even unknown to some companies.

Keywords Stock option plan, Dividends, Executive compensation, Agency conflicts

Paper type Research paper

1. Introduction

Executive compensation based on stock option plans has become an increasingly popular mechanism for top executive compensation. Marcon and Godoi (2004) define it as a system for the purchase of shares by employees linked to earnings in case there is an appreciation of the shares. On the other hand, the employee stays with the company for a certain minimum period. Also, according to the authors, companies that have stock options to remunerate their employees perform better than companies in the same segment. Black (2020) showed that the implementation of FAS 123 R led to a reduction in risk-taking and the implementation of projects with lower systematic risks.

The technical pronouncement CPC 10 (R1), equivalent to the international standard IFRS 2, which deals with the recognition of this type of remuneration in the financial statements of companies, defines it as an agreement between the entity and the employee that gives the

RAUSP Manag. J.
Vol. 57 No. 1, 2022
pp. 22-34
Emerald Publishing Limited
2531-0488
DOI 10.1108/RAUSP-06-2020-0117

employee the right to receive stock options from the entity or other companies linked to the group.

Law No. 6.404/76 also addresses employee compensation through the company's stock option in article 168, paragraph 3, which establishes that the company grants the option to purchase shares to its managers or employees and service providers within the authorized capital limit and under the plan approved by the general meeting.

The literature has sought to identify a relationship between the distribution of dividends and option compensation plans. As the distribution of dividends decreases the value of the share in the same proportion paid (1:1) *ceteris paribus*, there is a decrease in the probability of exercising the option by executives of dividend-paying companies. This happens because the call option exercise depends on the share price of a particular exercise price defined by the option plan. Thus, companies that pay dividends would make it difficult to reach the exercise price. Evidence indicates that companies that pay executives with options pay fewer dividends, signalizing agency conflict (Ferri & Li, 2018; De Cesari & Ozkan, 2015; Burns, McTier, & Minnick, 2015).

One solution found to mitigate this problem is the allocation of dividend-protected stock option plans. In these cases, as a rule, when the dividend is distributed, the plan's exercise price is automatically adjusted down. Geiler and Renneboog (2016) understand that the main reason for companies to grant the benefit of the stock purchase plan is to reduce agency problems, which deals with the relationship between managers and shareholders, given that the former has no motivation to drive their companies. Geiler and Renneboog (2016) find evidence that in companies where part of the remuneration of chief executive officers (CEOs) is made up of stock options, the dividends distributed are lower. Interestingly, the authors also identified that stock option remunerated managers prefer share repurchases combined with dividends rather than just dividends.

Research by Boyd, Brown, and Szimayer (2007) investigates the factors that influence the early exercise of stock option plans before their maturity and concludes that the distribution of dividends is a key factor for this. The authors analyzed the stock option plan not protected from dividends, as this can significantly decrease the exercise price of the stock option plan.

In this context, the aim of this study is to analyze whether the dividend-protected stock option plan influences the determination of dividend distribution in Brazilian companies.

To achieve the objective of this research, we analyze the following specific objectives:

- identify the long-term compensation plans used by companies;
- identify the main features of the option plans;
- identify which type of company uses the dividend protected or non-dividend stock option plan; and
- analyze clauses in stock option plans.

This study is relevant because the relationship between dividends and stock options has not yet been analyzed in Brazil, especially concerning the dividend-protected option plan, which is a relatively recent modality, but increasingly used by companies, mainly publicly traded companies. Because this aspect of the plans can impact shareholder remuneration, the compensation mechanism via stock options that has always had the objective of aligning the interests between shareholders and managers, in certain situations can generate unexpected consequences on the companies' dividend distribution policy. International literature points

to evidence that dividends are lower when the stock option plan is not protected from dividends (Zhang, 2018).

Arnold and Gillenkirch (2002) report that failure to protect dividends can be detrimental to investment; therefore, another issue underlies this study's importance: the growing use of the variable compensation mechanism for employees through the stock option plan and its potential impact on investors.

To investigate the identified research problem, we selected a sample of companies that paid or did not pay dividends and that paid or not their executives through stock option plans. The sample of this study is composed of 1,990 observations from 356 companies from 2010 to 2016. We used a multiple regression model and Tobit regression for the empirical analysis since the sample had an index higher than 30% of companies that did not pay dividends.

The results show a relationship between the option plan with protection and the distribution of dividends in all specifications. They also point to an increase in the distribution of dividends by companies that have dividend-protected stock options, showing that, when not protected, managers tend to retain a more significant share of the profit and pay shareholders less. In addition, they indicate that there is still no great adherence to the protection of option plans against the effects of dividends in Brazil.

This research contributes to a more efficient design of stock option compensation plans. It helps executives and companies understand how the design of the plan regarding the existence or not of dividend protection can influence the company's dividend policy and the behavior of managers. It also contributes to investors by showing that stock option plans can influence the expectation of future dividends. Finally, we contribute to the academic world because our study allows an overview of companies that used purchase option plans in Brazil and how stock option plans can bring unintended consequences concerning dividend protection.

A limitation of the article, which can be explored in future research, is to understand whether Brazilian companies are fully aware of the agency conflict existing between executives and shareholders regarding the distribution of dividends and whether they know the effects generated by the implementation of the option plan with protection.

2. Theoretical framework

The relationship between stock options and dividends has been studied by some authors and from different angles. For example, some analyzed the relationship between stock option plans and dividends (Zhang, 2018; Geiler & Renneboog, 2016), whereas others studied the dividend policy and payment variables, like Martins and Famá (2012). On the other hand, the performance issue of executives who have a stock option plan is highlighted in the studies by Marcon and Godoi (2004). It is also worth mentioning the study of Geiler and Renneboog (2016) analyzing the relationship between dividends and stock options.

Dividends have a direct relationship with the market value of the shares. Vancin and Procianoy (2016b), in their research on the determining factors for dividends payout, listed the general procedures when there is payment and pointed out that the action becomes ex-dividend, in general, on the date of the Management Meeting or the Annual or Extraordinary General Meeting, and its value will be deducted from the dividend even if it is to be paid in the future.

This effect of discounting the share price because of dividend distribution may affect the beneficiaries of stock option plans: if they want to exercise their right, they will have the market price of the ex-dividend share, that is, a lower market price which consequently

results in a lower gain. When analyzing the relationship between dividends and stock options, Geiler and Renneboog (2016) concluded that CEOs with stock option plans not protected from dividends prefer to avoid or decrease dividends payout because the announcement of dividends payout affects the price of the shares, causing a drop in value and the share traded at its ex-dividend price.

According to Madrid (2008), this problem can be eliminated with the inclusion of clauses in the stock option plans granting the beneficiaries the right to receive the dividend on the date the plan is due, that is, users are entitled to the dividend even before exercising the right to the plan.

However, Li and Zhao (2008) present another problem that arises with the misalignment of incentives. Firms with more significant information asymmetries are less likely to pay or increase dividends paid. Madrid (2008) states that the American markets have reduced their distribution of dividends in recent decades and have consistently adopted long-term variable compensation policies based on shares as a stock option plan for senior management, thus harming shareholders. There is also evidence that executive compensation as a stock option plan is associated with lower dividend distributions in European companies but also that this agency conflict can be mitigated with mechanisms to protect executives' performance-based remuneration (De Cesari & Ozkan, 2015; Burns *et al.*, 2015).

Aboody and Kasznik (2008) find evidence that the increase in dividends in companies is strongly related to the increased use of dividend protection in stock option plans and that there is a reduction when there is no use of dividend protection in stock option plans. Studies by Cuny, Martin, and Puthenpurackal (2009) evaluated the same theme and identified that companies with high stock option plans pay fewer dividends.

Zhang (2018) also analyzed this effect and concluded that when CEO compensation is dividend-protected, there is a positive and significant correlation with the level of dividend payout. He also listed some study implications, given the importance of protecting dividends for stock option plans. Among them, that investors should check whether the variable remuneration plans of the administrators have dividend protection, as this is a significant variable and can change the dividend policy. If this clause is not present, it should be included, as it aims to align the interest between shareholders and managers.

When analyzing the problems of stock option plans, Hall and Murphy (2003) point out that the main argument in favor of stock option plans is that they align the interests of executives and shareholders, providing the retention of the best employees, in addition to motivating them without necessarily spending money, as this is not yet an efficient mechanism for all positions in a company.

According to Marcon and Godoi (2004), stock options have been used to prevent the loss of competent professionals whenever the employee has the right, not the obligation, to buy shares and, in return, must remain in the company for a specified period. Furthermore, the authors emphasize that this variable remuneration mechanism represents a stimulus for the employee, who will commit to the company's development. Moreover, they also proved that companies that grant stock options perform better than other companies in the same sector.

The stock option plan was also analyzed from the perspective of theoretical accounting concepts of international standards (Galdi & Carvalho, 2006). Regarding Brazilian accounting standards, we have CPC 10, which defines the stock option plan as a contract that grants the beneficiary of the share the right, not the obligation, to subscribe to the entity's shares at a certain price and within a specified period.

Greater control over option compensation can reduce the misalignment of incentives between shareholders and managers. For example, Black (2020) found evidence that after

FAS 123 R, there were reductions in risk-taking incentives, which increased the CEO's risk aversion and led executives to invest in projects with lower systematic risks.

Kuang and Qin (2009) showed that a compensation plan with exercisable performance options for British companies is more efficient in aligning incentives, as long as the performance benchmark is deemed by managers as possible to be achieved. Abernethy, Kuang and Qin (2015) deepen this analysis and show that the most influential CEOs impose call option plans with low-performance targets.

Although studies show a negative relationship between stock option plans and dividends, which proves that the distribution of dividends to partners or shareholders is lower if the stock option plan is not protected from dividends, there are studies that state that this relationship does not exist or is insignificant (Canil, 2017; Ferri & Li, 2018).

Thus, the hypothesis that will be the object of this study is the following:

H1. Companies with a dividend-protected stock option plan have fewer restrictions on the distribution of dividends; therefore, they pay higher dividends than companies with a stock option plan without dividend protection.

3. Methodology

To verify the hypothesis, we performed a document analysis in item 13.4 (Compensation Plan based on actions of the Board of Directors and Statutory Board) of the reference forms of companies listed on B3 (Brazil, Stock Exchange, Over the Counter Exchange), to analyze which companies have stock option plans and which companies do not from 2010 to 2016. As for the accounting data, they were all extracted from Economática.

The companies observed totaled 843. However, 216 classified in B3 as category B were excluded because there was no obligation to publish information for item 13.4 of the Reference Form. Regarding accounting information, 268 were excluded for not having information for the variables object of this study. Thus, we ended up with 359 companies and 1,990 observations, as shown in Table 1.

We used companies' dividends payout as a dependent variable (termed here *Earnings*) to structure the model. We use the variable dividends paid per share to effectively capture the moment of distribution of earnings, considering that it includes dividends and interest on equity in the period of its effective distribution. It is also noteworthy that there is a positive correlation between the number of shares in the company and the size of the asset. Variables already established and indicated in the literature as determinants of dividends were used as controls (Zhang, 2018).

The first variable we used was financial leverage. High future cash flow and higher dividend payment are expected, or there may be an inverse relationship between leverage and dividend (Zhang, 2018; Forti, Peixoto, & Lima, 2015; Martins & Famá, 2012). The investment effect was captured through Capex. Companies with high levels of investment are usually required to retain their profits to finance such investments without changing debt levels (Forti *et al.*, 2015).

Table 1. Sample composition

Companies	843
(−)classified in B3 as category B	−216
(−)Companies with incomplete information	−268
Total no. of companies analyzed	**359**

Companies with revenue irregularities are likely to be less committed to paying dividends (Vancin & Procianoy, 2016a, 2016b); to capture this effect, we used the variable *revenue instability*. When increasing assets, companies need resources. Therefore, the resources used for asset growth compete with dividends payout (Vancin & Procianoy, 2016a, 2016b). Current liquidity seeks to control the effect of companies that offer more security so that their managers can maintain or increase dividend payout levels (de Moura, Padilha, & Silva, 2016; Forti *et al.*, 2015; Vancin & Procianoy, 2016a; Martins & Famá, 2012).

We use the *profit growth* variable as a determinant of profit growth, expecting companies with higher earnings growth to reduce managers' uncertainties and thus pay more dividends (Forti *et al.*, 2015). The company's financial performance was measured through return on equity (ROE), indicating that more profitable companies pay more dividends than others. In addition, the literature indicates that larger companies are more likely to pay dividends than smaller ones (Zhang, 2018; de Moura *et al.*, 2016; Forti *et al.*, 2015; Vancin & Procianoy, 2016a, 2016b; Fonteles, Peixoto Júnior, de Vasconcelos, & De Luca, 2013; Martins & Famá, 2012).

In Brazil, the non-payment of the minimum mandatory dividend can be justified by a loss in the current year. Even if there is profit in the period, it can be used to absorb the negative result of previous years. Different levels of corporate governance can positively influence dividends payout, in addition to helping in the conflict between shareholders and managers (*agency theory*) (Forti *et al.*, 2015; Vancin & Procianoy, 2016a, 2016b).

The independent variables, the object of this study, are detailed below:

- *Stock option plan* = binary variable that aims to show whether the company has the plan or not. If it does not have a plan, the variable will be represented by 0; otherwise, it takes value 1.
  It is expected that there is a negative correlation with the dependent variable, that is, companies that adopt stock options distribute fewer dividends (de Moura, Padilha, & Silva, 2016; Perobelli, Lopes, & Silveira, 2012).
- *Dividend-protected stock option plan* = binary variable that aims to show whether the company that has the plan is protected or not from dividends. If it does not have protection, the variable will be represented by 0; otherwise, it takes value 1.

It is expected that there is a positive correlation with the dependent variable, that is, companies that adopt dividend-protected stock options distribute more dividends or do not affect this variable (Zhang, 2018).

Table 2 shows the variables of interest and the control variables.

To verify whether the ESOP and ESOPPD variables influenced the dependent variable *Earnings* from 2010 to 2016, we used the estimation by OLS and Tobit, based on the adapted model by Zhang (2018). The following equation gives the investigated relationship:

$$\mathbf{EARN}_{i,t} = \beta_i + \beta_1 \mathbf{ESOP}_{i,t} + \beta_2 \mathbf{ESOPPD}_{i,t} + \beta_n \mathbf{VCD}_{n,i,t} + \boldsymbol{\varepsilon}_{i,t}$$

where:

i,t = Company and year;
EARN = Dividends per share;
ESOP = Stock options;
ESOPPD = Dividend-protected stock options;
$\boldsymbol{VCD_n}$ = Vector of the control variable *n*, where *n* can be:

Variables	Abbrev.	How to calculate	Literature
Dependent			
Earnings	EARN	EARN = Dividends per share	
Explanatory			
Indebtedness	INDEB	INDEB = (CL + NCL)/TA	Vancin and Procianoy (2016a); Forti *et al.* (2015); Martins and Famá (2012)
Capex	CAPEX	Growth rate of fixed assets/TA	Forti *et al.* (2015)
Revenue instability	REV_INST	REV_INST = σ [Ln(REV)]	Vancin and Procianoy (2016a)
Asset growth	ASSET_GROW	INVEST = $(TA_t - TA_{t-1})/TA_{t-1}$	Vancin and Procianoy (2016a)
Current liquidity	LIQ_COR	CUR_LIQ = CA/CL	de Moura *et al.* (2016), Forti *et al.* (2015); Martins and Famá (2012)
Profit growth	PROFIT_G	PROFIT_G = $(NI_t - NI_{t-1})/LL_{t-1}$	Forti *et al.* (2015)
ROE	ROE	ROE = NI/SE	Vancin and Procianoy (2016a)
Company size	LNTA	Logarithm of total asset value	Zhang (2018), de Moura *et al.* (2016); Forti *et al.* (2015); Vancin and Procianoy (2016a); Fonteles *et al.* (2013); Martins and Famá (2012)
Corporate governance levels (CG)	CG	Does company have them? Yes = 0 No = 1	Forti *et al.* (2015); Vancin and Procianoy (2016a)
Stock option plan	ESOP	Does company have it? No = 0/Yes = 1	de Moura *et al.* (2016); Perobelli *et al.* (2012)
	ESOPPD	Protected dividends No = 0/Yes = 1	Zhang (2018)

Table 2.
Variables

- Financial leverage
- Capex
- Indebtedness
- Revenue instabilities
- Current liquidity
- Corporate governance levels
- ROE
- Company size (total assets)
- Asset growth
- Profit growth

ε = *Error.*

4. Results

To solve problems from outliers, we perform winsorization for all non-binary explanatory variables to trim the extreme values (minimum and maximum defined). In this study, the upper limit was 99% and the lower limit 1% (Vancin & Procianoy, 2016b; Forti *et al.*, 2015). Another variable that had different values from the others was Capex, as its values were expressed in local currency. Therefore, to standardize the data, we divided it by the current year's total assets.

In the sample's descriptive statistics, we have the lowest value of the variable *Earnings* equal to zero, which refers to companies that did not distribute dividends in the period; these totaled 835 observations, which correspond to 41.96% of the sample.

Regarding the 67 companies that registered profits and did not distribute dividends, we analyzed the financial statements of the most profitable ones, which represent 44% of the total profit, to verify how companies justified it, because Brazilian law establishes the payment of a mandatory minimum dividend (Article 202 of law no. 6.404/76). As a result, companies justified that the non-payment of the minimum mandatory dividend occurred because of losses in previous years, to which the profit of the period was compensation.

Analyzing Table 3, it is possible to verify that the variables that indicate the growth of net income and the size of the companies present a large dispersion compared to the mean; this may be because our sample covers very different companies, in different financial situations. Indeed, the sample includes very profitable and unprofitable companies, which can be observed when we check the minimum and maximum of variables.

Table 4 shows the results of the multiple regression. The results indicate that the company that holds an option plan reduces dividends payout, which corroborates the findings of the studies by Geiler and Renneboog (2016), who argue that companies that adopt the stock option plan distribute fewer dividends. On the other hand, companies whose option plan protects the manager pay more dividends, a fact that corroborates the result found by Zhang (2018). We can also see that part of the control variables are significant and, therefore, these would be the explanatory variables for the dividend payout.

The indebtedness variables were significant and presented a negative coefficient, but the asset growth was not significant. These results partly corroborate the studies by Vancin and Procianoy (2016a), who found both significant and with a negative coefficient. However, the positive coefficient of asset growth is not a contradiction given the lack of significance. Thus, the findings partly corroborate what research demonstrates (Vancin & Procianoy, 2016a; Martins & Famá, 2012; Almeida, Pereira, & Tavares, 2014).

As to the level of significance found, indebtedness is more in line with the studies, highly significant and negative coefficient, as Vancin and Procianoy (2016a, 2016b) found, indicating that the resources used in the company compete with the distribution of dividends. The results indicate that for each BRL invested, the value of the dividend is reduced by more than BRL 411,000.00 per million in standardized debt, as well as current liquidity, significant and positive in both specifications (Forti *et al.*, 2015), showing that companies with high asset ratios pay more dividends.

Variables	No. of observations	Mean	SD	Minimum	Maximum
Panel A: continuous variables					
EARN	1,990	1.1902	4.9925	0	41.762
INDEB	1,990	0.7180	0.8148	0.1024	7.2312
CAPEX	1,990	0.0506	0.0589	−0.085	0.281
REV_INST	1,990	0.2807	0.3227	0.034	2.032
ASSET_GROW	1,990	0.0989	0.2582	−0.553	1.380
CUR_LIQ	1,990	0.7337	1.3215	−1	7.4
PROFIT_G	1,990	−0.1653	3.6239	−19.135	16.339
ROE	1,990	0.0498	0.4861	−2.955	1.574
LNTA	1,990	14.713	2.2093	9.618	25.828
Panel B: binary variables					
ESOP	1,990	0.3683	0.4825	0	1
ESOPPD	1,990	0.8543	0.2796	0	1
CG	1,990	0.5356	0.4989	0	1

Table 3.
Descriptive statistics

EARN	Multiple regression Coefficient	$p > \|t\|$	EA panel Coefficient	$p > \|t\|$
ESOP	−0.7419	0.000***	−0.2628	0.631
ESOPPD	1.8724	0.012**	0.9954	0.094*
INDEB	−0.4119	0.000***	−0.4502	0.013**
CAPEX	−6.7313	0.000***	0.1504	0.913
REV_INST	−0.1015	0.695	0.1091	0.684
ASSET_GROW	0.9069	0.229	0.1323	0.631
CUR_LIQ	0.3985	0.020**	0.2256	0.007***
PROFIT_G	0.0143	0.473	−0.0158	0.369
ROE	0.1663	0.279	0.3968	0.004***
LNTA	−0.1123	0.025**	−0.0175	0.841
CG	−0.2825	0.163	−0.4384	0.352
Constant	3.2125	0.001***	0.3239	0.946
Number of observations	1,990		1,990	
Sector and year dummy	YES		YES	
R-squared:	0.0690		0.0254	

Table 4.
Multiple regression and panel

Notes: ***, ** and * represent statistical significance of 1%, 5% and 10%, respectively. All standard errors are corrected for heteroscedasticity

The results for *revenue instability* were conflicting, switching the signal from multiple regression to random effects panel. However, it is not a serious problem as no specification was significant. The results are not in line with what was pointed out in previous research, where there is a negative relationship and a high degree of significance, indicating that unstable revenues are signs of reduced dividends (Vancin & Procianoy, 2016a, 2016b). As for the return on equity, represented by the ROE variable, also highly significant and positive (Vancin & Procianoy, 2016a), indicating what the literature has already shown, that the greater the profit on invested capital, the greater the distribution of dividends.

To give more robustness to the results, the sample in this study was composed of companies that paid dividends and those that did not (41% of the sample), and the model was also estimated using the Tobit estimator (Forti *et al.*, 2015). According to these authors, the model is suitable for samples censored at levels above 30%, and the use of the model is appropriate. Table 3 shows the results with and without year and sector controls.

Table 5 presents the results for the estimates by Tobit. A more considerable amount of significant dividend control variables can be seen. We also have the option plan variable with protection, which is the focus of the research hypothesis as significantly and positively correlated with the dependent variable earnings, showing an average increase of BRL 2.13 in dividends per share because of the existence of an option plan with protection.

In addition, we see that the ROE variable has positive and significant coefficients in both specifications. This result is in line with Zhang's (2018) and Forti *et al.* (2015), who deem the performance and asset size variables responsible for the distribution of dividends. In the study by Vancin and Procianoy (2016a), the determinant variables of dividend were income instability and asset growth; both had a negative relationship with dividends and ROE and company size, which were positively linked to shareholder remuneration. The results found here diverge from the literature in the fact that asset growth presents a positive and significant coefficient for both specifications, which is counterintuitive. The effect of indebtedness on the distribution of earnings is noteworthy, with an average drop of more

EARN	coefficient	$p > \|t\|$	Coefficient	$p > \|t\|$
ESOP	−0.6163	0.168	−0.3799	0.366
ESOPPD	2.3989	0.000***	2.1252	0.001***
INDEB	−7.9808	0.000***	−7.1743	0.000***
CAPEX	−7.4394	0.027**	−7.9976	0.012**
REV_INT	−2.8859	0.000***	−3.1672	0.000***
ASSET_GROW	2.0325	0.007**	2.3651	0.001***
CUR_LIQ	0.4218	0.010***	0.5841	0.000***
PROFIT_G	−0.0729	0.161	−0.0713	0.173
ROE	2.2761	0.000***	2.4356	0.000***
LNTA	0.3068	0.002***	0.2546	0.003***
CG	−0.0242	0.953	−0.1746	0.658
Constant	0.8482	0.901	−0.5600	0.687
Number of observations	1,990		1,990	
Sector and year dummy	YES		NO	
Pseudo *R*-squared:	0.0442		0.0346	

Notes: ***, ** and * represent statistical significance of 1%, 5% and 10%, respectively. All standard errors are corrected for heteroscedasticity

Table 5.
Tobit regression analysis

than 7 BRL in shareholder remuneration for each BRL that the debt grows above the growth of assets.

The Capex variable, which in this study reveals a negative and significant coefficient, corroborates the findings by Forti *et al.* (2015). Researchers argue that companies with higher investment levels tend to distribute less payout (dividends/net income). Thus, it is possible to observe a positive association for high dividend distributions.

When comparing the results of multiple regression and Tobit regression, we find that both were coherent with the sample and in line with results, showing few divergences between one result and the other. It can be seen that at Tobit, asset growth and revenue instability became significant, in addition to the size and Capex having presented more stable results and with greater significance. The results of profit growth and corporate governance remained without significance in both Tobit specifications. This result is likely because of some non-linearity in the relationship of the variables being captured by the estimator. For the other controls, the results are under the literature by Vancin and Procianoy (2016a); Fonteles . (2013); and Santana (2006), who worked with multiple regressions, and Zhang (2018) and Forti *et al.* (2015), who used Tobit regression.

For this reason, according to the literature on dividend determinants, we demonstrate that the Tobit model was able to reproduce the expected signs of the coefficients and better explain the control variables that determine the payment of such a benefit. However, multiple regression should not be disregarded, as it is widely used in research and presents results that are mainly similar to Tobit's (Vancin & Procianoy, 2016a, 2016b; Santana, 2006; Patra, Poshakwale, & Ow-Young, 2012).

In Tobit regressions with and without year and sector controls, we can see that the variable object of this study, *option plan with protection*, proves to be significantly and positively related to the dependent variable *Earnings*, as seen in Table 5. Thus, we show that the null hypothesis should not be rejected, as there is an influence on the dividend protection of a stock option plan to determine the distribution of dividends and ICP.

When we disregard sector and year control, the results are consistent. It is also noteworthy that the variable focus of the research, ESOPPD, maintains its positive and significant

relationship with the dependent variable *Earnings*; therefore, the results show that in all specifications, there is a relationship between earnings and dividend-protected stock options.

5. Conclusion

To investigate the relationship between dividends and dividend-protected stock option plan, we carried out the research having as dependent variable the amount of dividend and ICP distributed and control variables addressed in research that focused on the determinants of the dividend policy.

The independent variable that was key in the research was dividend-protected stock option (ESOPPD), used to verify whether the dividend-protected stock option plan influences the distribution of dividends. We used multiple regression, random effects panel and Tobit regression as evaluation methods.

The results showed a positive and significant relationship in all specifications between the option plan with protection and the distribution of dividends and interest on equity. Therefore, based on this result, it is evident that for companies that have a stock option plan protected from dividends, there is an increase in the distribution of dividends. On the other hand, evidence indicates that having the stock option plan does not affect the distribution of dividends if there is no protection for managers' remuneration.

The results also corroborated the literature in the area, pointing to expected signs and significance for the controls used. Thus, the determinants of the distribution of dividends in Brazil are mainly in line with those pointed out in the international literature.

The research contributes to the development of more efficient stock option compensation plans, as it demonstrates how the design of the plan regarding the existence or not of dividend protection can influence the company's dividend policy and, consequently, the incentive for managers. It also contributes to investors by showing that stock option plans can influence the expectation of future dividends. Finally, there is a contribution to academia and regulators because it allows an overview of companies that used purchase option plans in Brazil and how the characteristics of stock option plans concerning dividend protection can bring unintended consequences.

Regarding the characteristics of stock option plans in Brazil, we found that most companies still use unprotected stock options and target middle/high ranking positions as beneficiaries (administrators, managers and service providers). Furthermore, the term of these plans is an average of seven years, and specific conditions for acquisition are not established for their beneficiaries, who must observe the permanence in the company and performance metrics.

Among the suggestions for future research, there is the need to investigate:

- whether Brazilian companies are aware of the conflict between shareholders and dividends as well as of the fact that the adoption of stock option plans may not resolve this issue if they are not protected from dividends; and
- if shareholders know the effect that the distribution of dividends has on shares and consequently on stock option plans without dividend protection.

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Associate editor: Edison Simoni