

### DIVIDEND POLICY ON PUBLICLY WATER INDUSTRY COMPANIES **LISTED ON B3**

### POLÍTICA DE DIVIDENDOS PARA EMPRESAS DA INDÚSTRIA DE ÁGUA PÚBLICA LISTADA EM B3

### **ALEXANDRE RODRIGUES DA SILVA**

Faculdade de Economia - Universidade Federal do Rio Grande do Sul

### **GUILHERME KIRCH**

Faculdade de Administração - Universidade Federal do Rio Grande do Sul

### ABSTRACT

Companies in the water and sanitation sector try to balance the social responsibility of an essential asset and the remuneration of investors within a heterogeneous market for financial assets. The objective of this study is to evaluate the dividend policy of publicly traded companies in the water and sanitation sector in relation to the price of their market value. The period of study ranged from the IPO of the shares until December 31, 2019. The following variables were collected from each company: price, payment of dividends (aggregated in annual payment), annual net income and payout, this one defined as the ratio between the dividend payment and net income. The following conclusions were reached: 1) no differences were found between dividend paying and non-paying companies regarding the value of their shares; 2) there were also no differences between high and low payout paying companies regarding the value of their shares.

Keyword: dividend policy, corporate finance, water industry

### RESUMO

Empresas do setor de água e saneamento tentam equilibrar a responsabilidade social de um bem essencial e a remuneração de investidores dentro de um mercado heterogêneo de ativos financeiros. O objetivo deste estudo é avaliar a política de dividendos de empresas de capital aberto do setor de água e saneamento em relação ao preço de seu valor de mercado. O período de abrangência compreendeu desde o IPO das ações até 31 de dezembro de 2019. De cada empresa foram coletadas as seguintes variáveis: cotação, pagamento de dividendos (agregado em pagamento anual), lucro líquido anual e payout, este último definido como a razão entre o pagamento de dividendos e o lucro líquido. Chegou-se às seguintes conclusões: 1) não foram encontradas diferenças entre empresas pagadoras e não pagadoras de dividendos quanto ao valor de suas ações; 2) também não foram encontradas diferenças entre empresas pagadoras de alto e baixo payout quanto ao valor de suas ações.

Palavras-chave: política de dividendos, finanças corporativas, setor de água e saneamento





### **1 INTRODUCTION**

Despite investments made since the 50's of the last century, Brazil still remains with great inequalities in the water and sanitation sector (LEONETI et al., 2011). In addition, according to Leoneti et al. (2011), the main deficit is in the collection and treatment of sewage, higher than access to drinking water. In recent years, however, mainly through private initiative, resources have been invested. The authors warn of the need for these investments to be sustainable. Furthermore, according to Scriptore and Toneto-Júnior (2012), investment in sanitation is strategic for the country's long-term development, since this sector, in addition to guaranteeing the human right to drinking water, generates a series of positive externalities for public health, the environment, quality of life and income generation.

According to Freitas et al. (2014), universal access to the water and sewage network can generate positive externalities in Brazil, ranging from a decrease in health care expenses, thanks to a decrease in hospital admissions, generating savings of R\$ 27.3 million annually, as well as a reduction in in mortality from gastrointestinal infectious diseases and amount of time away from work. In turn, within a strictly economic perspective, the authors estimate a gain in wages, resulting in an increase in payroll of R\$ 105.5 billion annually, and this gain, in the long run, could reach 31, 6 billion annually, due to productivity gains. Universal access to water and sewage would also contribute to reducing the backwardness of education, real estate valuation (up to R\$ 178 billion) and the greater number of workers in the tourism sector.

Nunes (2015), demonstrated that public entities in the sanitation sector are still very incipient and state and municipal regulatory bodies are weak compared to large sanitation companies. Today there is a lack of a national regulatory body. The low regulation of public power, coupled with the omission of the state, hinders the development of the sector. In addition, Sousa and Costa (2013) highlight that the decision-making arena divided between the interests of states and municipalities makes it difficult to reach consensus on crucial points for the expansion of the sector. This fact negatively affects





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governance and financing mechanisms. State companies, through coordination and adaptation mechanisms, seek to maintain the institutional structure created by Planasa<sup>1</sup>. The preferences of state companies have been preserved and the current system has not been able to meet the country's real needs.

The experience in other countries of the privatization of the water and sanitation sector, aiming at greater investment in the sector, brings at least paradoxical results. According to Armitage (2012), Bertomeu-Sanchez (2019), Allen and Pryke (2013), and Yearwood (2018), while increasing access to water and sanitation, these companies ended up leveraging themselves excessively as a way of pay higher dividends. Consequently, the higher interest payment ended up increasing water tariffs, in a model that benefits investors much more than consumers.

In Brazil, there are still few publicly traded companies in this sector. However, with the recent approval of the Sanitation Regulatory Framework (LAW No. 14,026, of JULY 15, 2020), the possibility opens up for new players with investment capacity superior to that of the public sector.

The purpose of this study is to evaluate the dividend policy of publicly traded companies in relation to the price of their market value. This article is divided as follows: this introduction, followed by the theoretical framework where a bibliographic review is demonstrated which will support the working hypotheses. Then, the methodology details how the data was collected and analyzed. In the results section, the data analysis is shown according to the hypotheses and the results are discussed in the light of the literature. The article ends with the final considerations, where the conclusions are taken up.

### 2 THEORETICAL FRAMEWORK

<sup>&</sup>lt;sup>1</sup> National Sanitation Plan: instituted in 1971, determined the centrality of state sanitation companies in the provision of sanitation services in Brazil. Managed by the respective state executives, they would act for almost two decades according to the guidelines imposed by the Union for the sector (SOUSA; COSTA, 2013).





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The occurrence of privatizations of regulated sectors in countries like the United Kingdom such as railways and airports were carried out in the face of a scenario of deregulation, increased competition and customer choice, aiming to give the population a share in society (KAY; THOMPSON, 1986). According to Allen and Pryke (2013), since the privatization of water in England and Wales in 1989, with the hegemony of global infrastructure funds acquiring these companies, a distorted model of financialized infrastructure in the water sector has emerged. The authors argue that a debt refinancing model based primarily on securitizing corporate revenue streams has generated more benefits for investors than for customers.

Allen and Pryke (2013) took the example of Thames Water, the UK's largest water company, with 13 million customers in southeastern England, of which just under 9 million depend on them for water supply. Purchased in 2006 by an international investor consortium led by Australian bank Macquarie Group, the authors demonstrated that the emergence of a financialized infrastructure model in the water sector has generated more benefits for investors than for customers. In addition, a debt refinancing model based largely on securitizing revenue streams has worked to the advantage of shareholders and financial intermediaries, showing that considerable dividend payments over time are largely financed, not outside cash flows, but through leveraged debt, and that this debt agreement is only possible due to the predictable nature of the revenue streams captured from families who have no choice about their water supplier or the amount they have to pay for their water.

Still according to Allen and Pryke (2013), the adjustment to this reality by the regulator, however, seems to have occurred at a distance, with much of the financial calculation and political manipulation, causing losses to consumers, who, instead of benefiting from the new financial reality, were transformed into the financial asset of this industry.

Bertomeu-Sanchez (2019) studied the causal impact of the Similarly. financialization of private companies on their results, focusing on the water and sewage sector in England and Wales, demonstrating that there is strong leverage in these





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companies, and that this greater leverage and, therefore, financialization, contributed to a positive impact on tariffs with consumers. These results, according to Bertomeu-Sanchez (2019), suggest that financialization should be followed more carefully by regulators as evidence of negative effects - from a social welfare perspective - on the main outcome variables is presented. In fact, purchased water companies that provide essential goods and services are more leveraged, increasing the risk of financial difficulties and charging consumers higher prices.

Yearwood (2018), in assessing the privatized water and sewage industry in the UK, demonstrated that the 40% increase in real household accounts since privatization was driven mainly by the continued increase in interest payments on debt, contrary to the argument of the which regulator attributed them to the rising costs and investments. In addition, the author showed that accelerating debt levels are mainly the result of disproportionate dividend payments, which have exceeded the cash balances of privatized companies in all but one year since 1989. The author concludes that the way the sector it is not sustainable and harms consumers, in addition to creating an environment of unreliable information on the part of the regulator and companies.

According to Bertoméu-Sánchez and Estache (2019), there is little precise guidance in the academic literature on the interactions between infrastructure regulation and dividend payment decisions in the sector. Until recently, most insights were largely extrapolated from extensive comparisons between regulated and unregulated companies. Only recently has academic research advocated evaluations that explicitly focus on the behavior of regulated sectors in relation to their dividend payment decisions. Considering the case for closer monitoring of dividends in regulated industries is particularly important in a context where there is evidence that higher dividends are correlated with lower investments and possibly lower quality of service in various dimensions, a fact also seen by Silva (2019) in another regulated sector, the Brazilian electricity sector. In view of the current significant investment needs of regulated industries linked to environmental and technological issues, a closer look at the details at the sector level seems indeed important.





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According to Armitage (2012), high levels of investment in relation to cash flows, combined with high dividend payments, have caused UK water companies to persistently resort to loans to meet their cash outflows. This behavior, according to the author, is not adequately explained by conventional theories of dividends. The intensive regulatory environment means that agency costs and information asymmetry are low, and there is no clear fiscal reason for companies' regular dividends. Armitage (2012) argues that large regular dividends are mainly explained by a demand for dividends from investors and that there are institutional or behavioral reasons for the demand.

Another possible difference is that water companies are more transparent than regular companies and, therefore, the "information cost" of external capital is lower. The argument here is that, if a normal company gets into gear, it may need to increase equity, which would have transaction costs and information more severe than the increase in debt. The clearest differences are the lack of investment opportunities in the regulated water sector, in addition to the investment allowed by the regulator, and the very low level of risk in the business. When deciding on a company's leverage level, company managers say that retaining financial flexibility is of the first order (GRAHAM; HARVEY, 2001); in the UK survey by Beattie et al. (2006), "ensuring long-term survival" tops the list. Maintaining flexibility is valuable when future opportunities are uncertain and when a downturn in business may arise. Therefore, financial flexibility can be much more valuable to many unregulated companies than to water companies. It is worth exploring further how the value of flexibility affects gearing policy.

When analyzing state companies in the water and sanitation sector between 2013 and 2015, Araújo and Bertussi (2018) showed that the highest revenues are presented by the companies Sabesp, Cedae, Copasa and Sanepar. Among the costs, Sabesp, Copasa, Embasa and Cedae lead. Cosama, Caer, Caerd and Casal have the lowest costs and also the lowest revenues. Most companies have positive gross profit. However, Cosama and Caerd have been presenting gross losses for the past three years. As for the net result, almost half of the companies had a loss in 2015. The biggest net losses were presented by Saneago (R\$ 235.3 million) and by Cagece (R\$ 129 million). Sabesp (R \$





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536.3 million) and Sanepar (R\$ 438.4 million) had the highest net profits. However, Sabesp has been decreasing its net profits in recent years. From 2013 to 2015, its net profit fell by more than 70%. Sanepar, however, is the only company that has shown an increase (even if not so relevant) in net profit in all three years. Many companies increased their profits from 2013 to 2014, but declined in 2015. Of the twenty companies, fifteen of them had lower net profits in 2015 than in 2013, or had greater losses in that period. Five companies (Caer, Cagepa, Casal, Cosama and Caerd) had net losses in all three years.

The results presented by Araújo and Bertussi (2018) demonstrate that state sanitation companies have low IRTs and a long payback period. Among the companies that presented positive rates of return in 2015, Sanesul (6.93%) and Sanepar (5.32%) were the ones that presented the highest rates. However, these rates are low, so much so that Sanesul will need 14 years (payback) to recover the investment made and Sanepar 19 years. High capital companies, such as Sabesp and Cedae, will need 63 and 53 years, respectively. Deso, which made a paltry profit in 2015, would need 3,163 years.

Magnusson and Enebrand (2018) investigated how the relationship between the company's performance and the share price is affected by the level of dividends a company pays. The authors performed a correlation and regression analysis performed on data collected from medium and large cap companies listed on the Stockholm stock exchange between the years 2007-2017. Their results indicated that most companies, which have the highest share prices, are in the high dividend yield sample. In addition to the average share price, it was also observed that the stock price standard deviation is smaller in the high dividend yield sample compared to the low dividend sample, featuring less variability and, therefore, less volatility.

The results of the study by Magnusson and Enebrand (2018) show that the stock price of high dividend yield companies is more dependent on financial performance compared to low dividend yield companies, although there is a positive correlation in both groups. The authors suggest that this could be explained by investors' preference for how and when to receive their returns. On the investor's part, companies with high dividend payments generate short-term gains, while companies with low dividends are more







uncertain long-term gains. This behavior of risk aversion on the part of investors, in turn, causes them to place a premium on the return today, dividend, on the appreciation of the share price tomorrow. By applying this argument to the results of Magnusson and Enebrand (2018), the authors came to the conclusion that those who invest in companies that pay high dividends avoid uncertainty when receiving part of their return in dividends, investing based on the company's current performance and less on future potential earnings. Thus, there is a stronger correlation between the company's performance and the stock price.

According to Raza et al. (2018), the empirical literature recorded systematic deviations in the behavior of dividend policy in different companies, countries and time intervals. Despite more than fifty years of debate and attempts to empirically prove the various theories, the evidence collected is neither conclusive nor does it fully clarify the effect of the dividend policy on the share price (Table 1).

Table 1 Relationship between analondo and stook phoes (stadies round)				
	Developed countries	Developing countries		
Positive relationship	10	14		
negative relationship		2		
ambivalent relationship	2	4		
No relation	3	3		
*According Raza et al. (2018)				

Table 1 - Relationship	between o	dividends and	stock	prices (	(studies found)	) *
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According Raza et al. (2018)

In view of the above, the following hypotheses are proposed:

Hypothesis 1: companies that pay dividends in the water sector show greater appreciation of their shares.

Hypothesis 2: companies that pay large dividends in the water sector show greater appreciation of their shares than companies with low payout.





#### 3 METHODOLOGY

Publicly traded companies in the water and sanitation sector listed on B3 were selected from Yahoo Finance. The period ranged from the IPO of the shares until December 31, 2019. The following variables were collected from each company: prices by share, payment of dividends (aggregated in annual payment), annual net income and payout, defined as the ratio between the dividend payment and net income. The companies were divided into two groups: paying and non-paying dividends. Student's ttest established with a level of statistical significance set at 0.1 was used to compare the following parameters: annual change in stock price (both in relation to the previous year and two years earlier) and annual change in net profit (both in terms of compared to the previous year as well as two years earlier).

From the group of dividend-paying shares, it was divided into two other groups: low-payout and high-payout shares. The cut-off point was 30%, given the mandatory payment of minimum dividends established at 25% of net income (Law 6,404 / 76). Student's t-test established with a level of statistical significance set at 0.1 was used to compare the following parameters: annual change in stock price (both in relation to the previous year and two years earlier) and annual change in net profit (both in terms of in relation to the previous year and two years earlier), in addition to the annual variation in payout and dividends (both in relation to the previous year and two years before).

### 4 RESULTS

Four publicly traded companies listed on B3 were found: Sanepar (code sapr3), Copasa (csmg3), Sabesp (sbsp3) and Casan (casn4). There were 48 companies-years since 2001 (Sabesp's case), 2007 (Copasa), 2011 (Sanepar) and 2013 (Casan). Only Casan did not pay dividends.





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Table 2 shows the comparison between paying and non-paying dividend companies. None of the parameters studied was statistically significant, despite the fact that the group of dividend payers all had outcomes that were numerically superior to the other group. These results, therefore, demonstrate the nullity of hypothesis 1.

Table 2 – Companson between underld paying and non-paying companies				
	payers (mean ± standard	No payers (mean ± standard	P value	
	error)	error)		
payout	66,4±11,3			
∆cot	13,8±5,3	4,2±6,6	0,57	
∆div	47±23,6			
ΔLL	4,3±48	-23,8±139,8	0,89	
∆pay	82,8±32,6			
pay₋₁	20±27,7			
∆cot₋1	8,5±7,9	5±7,8	0,87	
∆div-1	20,1±19,7			
$\Delta LL_{-1}$	100±66	59,1±183,5	0,89	
∆pay₋₁	-39,3±57,8			

Table 2 – Comparison between dividend paving and non-paving companies

Abbreviations:  $\Delta cot$ : variation of the share price between t<sub>0</sub> and t<sub>-1</sub>;  $\Delta div$ : variation in the dividend paid per share between  $t_0$  and  $t_{-1}$ ;  $\Delta LL$ : variation in net earnings per share between  $t_0$  and  $t_{-1}$ ;  $\Delta pay$ : payout variation between  $t_0$  and  $t_{-1}$ ; pay-1: payout in the period t-1;  $\Delta \cot_{-1}$ : variation of the share price between t-1 and t-2;  $\Delta div_{-1}$ : variation in the dividend paid per share between t-1 and t-2;  $\Delta$ LL-1: variation in net earnings per share between t-1 and t-2;  $\Delta$ pay-1: payout variation between t-1 and t-2.

Table 3 shows the comparison between high and low payout companies. The only statistically significant parameter was the average payout itself. Of the other parameters, we highlight the high dispersion of dividend payments in the low payout group (standard error of 107.9) compared to the previous year, the high dispersion of the payout variation in the low payout group (standard error of 93) in relation to the previous year, the highest price by share growth in the low payout group in the two periods tested. These results, therefore, demonstrate the nullity of hypothesis 2.





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It is also important to highlight, within high-payout companies (table 3), the variation in payout in relation to the previous year (t-1) between year t-1 and year t-2. The first variation was highly positive (94%), quite different from the last (represented in Table 3 as Apay-1), which had a negative variation (-48%) Student's t-test demonstrated statistical significance (p = 0.08). When tested in the low payout group, there was no difference between the periods. This finding is in agreement with the study by Armitage (2012), which demonstrated that the payout of companies in the water sector can vary according to the perception of managers in relation to shareholders' greed for dividends. Armitage (2012), in turn, places his findings within the theory of catering dividends, by Baker and Wurgler (2004). Paradoxically, still in table 3, it is possible to see that the variation in payout in both years was negatively related to net income, perhaps in an attempt to keep the amount of dividends paid constant.

Table 3 – Comparison between high and low payout companies				
	Payout < 30 (mean ±	Payout > 30 (mean ±	P value	
	standard error)	standard error)		
payout	11,1±1,6	90,2±13,1	9x10 <sup>-8</sup>	
∆cot	21,2±8,3	14,3±6,5	0,53	
∆div	158,2±107,9	67±34,2	0,39	
ΔLL	64,2±73,8	-35,7±24	0,23	
∆pay	47,3±50	94,1±40,6	0,47	
pay <sub>-1</sub>	106,3±93	20,9±42,3	0,62	
∆cot₋1	12,7±5,4	7,2±10,5	0,65	
∆div₋1	46,7±32,3	24,6±36,2	0,36	
$\Delta LL_{-1}$	-20±80,1	77,8±53,8	0,38	
∆pay₋₁	42,6±70,1	-48,4±72,9	0,43	

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\* statistical significance

Abbreviations:  $\Delta cot$ : variation of the share price between t<sub>0</sub> and t<sub>-1</sub>;  $\Delta div$ : variation in the dividend paid per share between  $t_0$  and  $t_{-1}$ ;  $\Delta LL$ : variation in net earnings per share between t<sub>0</sub> and t<sub>-1</sub>;  $\Delta$ pay: payout variation between t<sub>0</sub> and t<sub>-1</sub>; pay<sub>-1</sub>: payout in the period t<sub>-</sub> 1;  $\Delta \cot_{-1}$ : variation of the share price between t-1 and t-2;  $\Delta div_{-1}$ : variation in the dividend







paid per share between t-1 and t-2;  $\Delta$ LL-1: variation in net earnings per share between t-1 and t-2;  $\Delta$ pay-1: payout variation between t-1 and t-2.

### **5 CONCLUSIONS**

Due to historical deficiencies within the water and sanitation sector, the need for greater investment has led to new paradigms within a sector until then statist and dependent on the public sector. The entry of private investors, in addition to a greater inflow of resources to improve infrastructure, also means a change in the management model. As seen in the case of the United Kingdom, the trade-off between investors and consumers has led to conflicts whose regulation implies legal certainty and a regulatory agency capable of managing this conflict.

The new Sanitation Regulatory Framework, approved in 2020, should avoid the imbalance between the remuneration of investors, the investment necessary for the qualified universalization of the service, the leverage of companies and the tariff for the consumer, which must be compatible with the economic reality of families. This study focused on publicly traded companies in the water and sanitation sector. These companies, which have been operating for years within a legal framework that is in the process of being overcome, are trying to balance the social responsibility of an essential good (water) and the remuneration of investors within a heterogeneous market for financial assets. The intra-sectoral analysis also served to search for possible differences between companies and between different periods. Unfortunately, the small sample size prevented a more robust statistical analysis. However, an important variation of payout in different periods in the group of companies with high payout was found, which is compatible with the study that Armitage (2012) carried out in the water and sanitation sector in the United Kingdom.

Despite the aforementioned limitations, the following conclusions were reached: 1) no statistically significant differences were found between dividend paying and non-paying





companies in terms of the value of their shares; 2) no statistically significant differences were found between high and low payout paying companies in terms of the value of their shares.

The future prospects will be to consider the dividend policy of Brazilian companies in the water and sanitation sector within the institution of the new sanitation framework, in addition to an increase in covered time, a greater number of companies and the use of other variables (financial or not) for a better understanding of the sector's dividend policy in the face of institutional changes.

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