

# Determinants of RPTs in the Brazilian stock market: analysis of control-ownership wedge, firm value, performance and corporate governance

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## Abstract

This study aims to analyze the influence of the control-ownership wedge, firm value, performance, and corporate governance in the value of Related Party Transactions (RPTs) of companies with pyramidal structures. The research is conducted in Brazil over an eight-year period from 2010 to 2017 and uses an unbalanced sample of 153 firms or 929 firm-year observations. The paper uses an OLS panel and a quantile regression as robustness. Our findings show that control-ownership wedge, performance, and corporate governance are determinants of the total value of RPTs. The deviation has a positive influence, showing that the excess of control rights increases the total value of RPTs. On the other hand, performance has a negative effect, showing that less profitable companies have incentives to participate in RPTs. In corporate governance, the relationship is positive, contrary to the expected in the literature. It signals that the corporate governance environment in Brazil has not reduced the total value of RPTs in pyramidal companies. The research contributes to the literature by presenting evidence of an emerging market and relating relevant themes in corporate finance, characterizing the use of RPTs by companies with pyramidal structures.

## Keywords

Related party transactions. Pyramidal. Ownership. Performance. Firm value. Corporate governance.

## Resumo

Este estudo tem como objetivo analisar a influência do desvio de controle-propriedade, valor da firma, desempenho e governança corporativa no valor das Transações com Partes Relacionadas (TPRs) de empresas com estrutura piramidal. A pesquisa é realizada no Brasil durante um período de oito anos, de 2010 a 2017, e utiliza uma amostra não balanceada de 153 empresas ou 929 observações empresa-ano. O artigo usa um painel OLS e uma regressão quantílica

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como robustez. Os resultados mostram que o desvio de controle-propriedade, desempenho e governança corporativa são determinantes do valor total dos TPRs. O desvio tem influência positiva, mostrando que o excesso de direitos de controle aumenta o valor total das TPRs. Por outro lado, o desempenho tem efeito negativo, mostrando que empresas menos lucrativas possuem incentivos para participar de TPRs. Na governança corporativa, a relação é positiva, ao contrário do esperado na literatura. Sinaliza que o ambiente de governança corporativa no Brasil não reduziu o valor total das TPRs nas empresas piramidais. A pesquisa contribui com a literatura ao apresentar evidências de um mercado emergente e relacionar temas relevantes em finanças corporativas, caracterizando a utilização de TPRs por empresas com estrutura piramidal.

### **Palavras-chave**

Transações com partes relacionadas. Piramidal. Propriedade. Desempenho. Valor da firma. Governança corporativa.

### **JEL Classification**

G32; M21.

## **1. Introduction**

Studies involving the themes of ownership and control structures are relevant to corporate finance, especially in agency relations (Jensen and Meckling 1976). In the absence of mechanisms to protect minority shareholders, the majority shareholders may exercise private benefits, resulting in an important social cost, which corresponds to the expropriation of this group with the lowest percentage of shares (Bebchuk et al. 2000; Bozec et al. 2010; Cho and Lim 2018; Huyghebaert and Wang 2012; La Porta et al. 1999). The largest shareholders can use certain methods to maximize their interests, such as deviations of rights and related party transactions (Cheung, Jing et al. 2009; Di Carlo 2014; Kim and An 2018).

The deviations of rights arising from the control-ownership wedge between control and cash flow rights. The deviations are typical in pyramidal structures, in which a company (can also be an individual, a family, or a government) obtains or controls several companies through a hierarchical relationship of ownership (Wolfenzon, 1999). The controlling shareholder exercises control through at least one publicly listed company (La Porta et Lopez-de-Silanes, and Shleifer 1999)). Pyramidal structures are very common in some countries, such as Continental Europe, Asia, and South

America, often being organized into family business groups (Almeida et al. 2011; Bena and Ortiz-Molina 2013; Chung 2014; (Claessens, Djankov, and Lang 2000; Di Carlo 2014; Faccio and Lang 2002).

The Brazilian market has several characteristics that make it particularly suited to investigation in pyramidal ownership and related party transactions. Brazil has one of the largest stock market capitalizations among emerging markets (Carvalho da Silva and Subrahmanyam 2007). Due to Brazilian capital market legislation, a company can issue dual-class shares: common stock (with voting rights) and preferred stock (with non-voting rights). The preferred share has the 'preference' for the payout of the dividends and the payback of its value at the liquidation of the company (Procianoy 2001).

In the 1990s, the majority of Brazilian companies had concentrated control structures, where the shareholders (mostly companies, families, and individuals) owned more than 50% of the voting shares. In the 2000s, there were important changes in the Brazilian capital markets, such as issues related to corporate governance. The structures remained concentrated in this period, especially in companies with non-voting shares. In pyramidal ownership structures, in 2010, the largest ultimate shareholder held on average, 68% of the voting rights and 48% of the cash flow rights, with a deviation of rights of around 20 percentage points (Aldrighi 2014).

Many Brazilian listed firms belong to business groups which link their affiliated firms via pyramidal ownership. Indirect control structures are very common in Brazil and are used to at least keep (and sometimes increase) the voting power by controlling shareholders at a lower cost (Carvalho da Silva and Leal 2006). The controlling shareholders of Brazilian business groups are predominantly families (Aldrighi and Postali 2010). As a result, the divergence between control and ownership rights implies agency conflicts between controlling shareholders and minority shareholders (Kang et al. 2014).

Related party transactions (RPTs), on the other hand, can be understood as business ties, as they correspond to transactions (assets, goods, equity, between others) with shareholders, members of the board of directors, and affiliated or subsidiary companies (Al-Dhamari et al. 2018; Cho and Lim 2018). RPTs turn up in various forms such as excessive executive compensation, loan guarantees, and expropriation of corporate opportunities, in addition to transactions of goods of services (Yoon and Jin 2021).

RPTs are legitimate commercial activities and common business operations around the world (Bansal & Thenmozhi, 2020); however, they are seen by some market participants as capable of expropriating minority shareholders (Bhuiyan and Roudaki 2018; Rahmat et al. 2018). In the scope of business groups, RPTs can be considered the transfer of tangible and intangible resources between affiliates, with intra-group negotiations that result in economies of scale and scope (Cai et al. 2016; Chang and Hong 2000). RPTs can occur through transfer prices that bring benefits to the controllers. If these groups have a higher percentage of company X compared to company Y, they will have incentives to use transfer prices from Y to X (Black et al. 2015).

Due to the RPTs and control-ownership wedge from the indirect structure present elements of expropriation of minority shareholders, it becomes relevant to verify the causal relationship between both (Kang et al. 2014). The divergence between control and ownership rights may imply the expropriation of minority shareholders (Kang et al. 2014). As a result, previous literature uses deviation of rights as a proxy for the probability of expropriation (Cheung, Jing, et al. 2009). Under agency theory, controlling shareholders can use the deviation of rights as a mechanism to transfer or canalize resources between affiliated companies, since RPTs commonly occur in companies affiliated with groups (Khanna and Yafeh 2007), in which pyramids are the most common form of ownership structure (Almeida and Wolfenzon 2006).

Therefore, the magnitude of RPTs is positively associated with deviation of rights (Bertrand, Mehta and Mullainathan 2002), suggesting that these transactions are carried out more actively when there are greater deviations of rights, implying more pronounced agency problems (Kang et al. 2014). Therefore, the present study aims to analyze the influence of control-ownership wedge, firm value, performance and corporate governance in the value of related party transactions of companies with pyramidal structures in Brazil.

Using data from publicly traded Brazilian companies, our study finds evidence of the connection between RPTs and control-ownership wedge. More specifically, there is a positive influence on the deviation (control-ownership wedge) in the value of the RPTs. The paper contributes to contemporary literature by analyzing the related party transactions and pyramidal ownership in an underexplored capital market, which has

only recently received the attention of researchers. Compared to previous studies on this theme (Gordon, Henry, and Palia 2004; Kang et al. 2014; Yeh, Shu, and Su 2012), this research considers the pyramidal structure in the control-ownership wedge. The measure for calculating the control-ownership wedge is based on a national methodology (Aldrighi 2014; Aldrighi, Postali, and Diaz 2018), with the objective of incorporating the peculiarities of the Brazilian capital market, such as the presence of two classes of shares.

Regarding the research of Kang et al. (2014), this study advances by applying a different methodology, based on quantile regression, with a recent estimator (Machado and Santos Silva 2019). From the quantiles, it is possible to determine the effect of deviations on the levels of RPTs values. Its representativeness can be attributed to the goal of exploring the determinants of RPTs in emerging markets, characterized by concentrated ownership structure.

Similarly, RPTs are a theme that has been little explored in Brazilian literature. There is a relatively small amount of literature on RPTs due to the challenges in collecting RPT disclosures (Gordon et al. 2007; Kohlbeck and Mayhew 2017). Much of the research dealing with RPTs analyzes their effect on the performance of companies or on the value of the firm, that is, they use RPTs as an explanatory variable (Black et al. 2015; Bona-Sánchez, Fernández-Senra, and Pérez-Alemán 2017), while studies using RPTs as a dependent variable do not consider the indirect ownership structure (Chen, Li, and Chen 2017).

The paper is organized as follows. Section 2 reviews prior studies and develops our hypotheses. Section 3 presents our research methods and sample selection. Section 4 shows the results of empirical analyses and discussion, and Section 5 concludes this study.

## **2. Pyramidal Ownership and Related Party Transactions**

The pyramid structure allows for the creation of elites to control most of the corporate sectors (Morck 2007) that can maintain control (voting rights) with a relatively small fraction of ownership (cash flow rights),

creating the deviations of rights (Levy 2009; Riyanto and Toolsema 2008). The pyramidal ownership structures, cross-holdings and multiple class shares increase the control–ownership wedge (Aldrighi and Postali 2011; Faccio and Lang 2002; Kang et al. 2014).

In Brazil, family ties have always been central to groups, with ownership still predominantly familial (Khanna and Yafeh 2007). Families generally have more voting than cash flow rights in pyramidal structures within business groups (Aguilera and Crespi-Cladera 2012; Almeida et al. 2011; Almeida and Wolfenzon 2006; Bena and Ortiz-Molina 2013; Bennedsen et al. 2015; Chung 2004; Chung 2014; Claessens, Djankov, and Lang 2000).

The family develops a system of social norms, detains intragroup transaction costs, and encourages the dissemination of information between group companies (Khanna and Palepu 2000). This concentration of control rights gives the family the option of using private benefits by transferring resources along the chain of ownership (Kim 2010). Opting for a pyramid scheme can be an incentive to RPTs (Kang et al. 2014; Maheshwari and Gupta 2018).

In Brazil, the regulation of RPTs is based on CPC n°5 (R1) technical pronouncement of the Securities and Exchange Commission of Brazil (CVM), which considers transactions as “transfer of resources, services or obligations between an entity that reports the information and a related party, regardless of whether a price is charged in return”. The company must disclose transactions that have a total value greater than R\$ 6 million, 1% of the company’s total assets, or if the managers consider it relevant.

Researches who examined related party transactions document that controlling shareholders can expropriate wealth from minority shareholders in companies (Choi and Cho 2021) from 3 motives: tunneling, propping and earning management. Tunneling and propping has particular significance in companies with concentrated ownership and, in general, academic research has focused much more on tunneling than on propping (Cheung, Jing et al. 2009). Tunneling can take many forms, such as financial assistance, assets purchasing or selling and pricing transfer (Li 2021). In the third reason for using RPTs, aggressive accounting choices and profit manipulation are related to earnings management, which, in RPTs, can come from cash sales between related parties (Jian and Wong 2010).

The central discussion in the literature is the effect of RPTs on companies, seen as two alternative perspectives of related party transactions (conflict of interest versus efficient transactions views). One view is that related party transactions are conflicts of interest (Al-Dhamari et al. 2018; Gordon, Henry, and Palia 2004) because RPTs can be selected to favor the interests of the controlling shareholders (Dyck and Zingales 2004; Marchini, Andrei, and Medioli 2019; Rahmat, Mohd Amin, and Mohd Saleh 2018). These transactions occur through tunneling (Cheung, Jing et al. 2009; Johnson et al. 2000) and propping operations (Bertrand, Mehta, and Mullainathan 2002; Bertrand and Mullainathan 2003; Jian and Wong 2010).

An alternative view (efficient transactions view) is that RPTs can benefit related entities due to the transfer of resources with lower costs (Al-Dhamari et al. 2018; Bansal and Thenmozhi 2020; Gordon et al. 2007; Lin and Yeh 2020). RPTs function as an internal capital market that provides better utilization and allocation of assets among affiliated firms (Lin and Yeh 2020). This type of transaction occurs in emerging economies, where transactions with unrelated parties are more expensive, seen as inefficiencies in the judicial systems and execution of contracts (Wang, Cho, and Lin 2019). In emerging markets, groups reallocate capital to help affiliates capture market share, because internal capital markets enable groups to exploit crises to realize long-term competitive advantages. It is not observed in developed markets (Masulis et al. 2021).

Therefore, RPTs and pyramidal structures can be considered proxies for the maintenance of control from controlling shareholders. With the high voting power (caused by the deviation), the chances of agency conflicts and expropriation of minority shareholders increase (Huyghebaert and Wang 2012). Marchini, Andrei, and Medioli (2019) identified that the majority shareholders hide details of RPT because its disclosure is not provided in a standard and unique format. This scenario is more worrying in countries with weak legal protections, where conflicts are more severe (Kang et al. 2014). Based on the above discussion, the general search hypothesis:

*Hypothesis 1.* There is a positive association between the control-ownership wedge and the RPTs.

In addition, other aspects relate to RPTs and pyramidal ownership. For example, in the United States, initial RPT studies using data focus on

valuation and performance implications of RPTs (Kohlbeck and Mayhew 2017). Companies with good performance and firm value will be able to use RPTs to maintain/increase their results, from the perspective of efficient transactions (Wong, Kim, and Lo 2015). Conversely, companies that have financial constraints are more likely to use this type of transaction to gain profit opportunities (Kang et al. 2014; Wang, Cho, and Lin 2019).

Empirical results show that RPTs are negatively associated with a firm's value due to conflicts of interest (Bona-Sánchez, Fernández-Senra and Pérez-Alemán 2017; Cheung et al. 2009). Also, trading with higher related parties is associated with worse company performance (Wang, Cho, and Lin 2019), as these companies may have incentives for opportunistic gains (Kang et al. 2014).

On the other hand, RPTs between companies in the same group can positively influence a firm's value (Wong, Kim, and Lo 2015), as well as companies with greater similarity and vertical integration in the group, can obtain better performance from RPTs (Wang, Cho, and Lin 2019). For example, Maheshwari and Gupta (2018) found a positive association between RPTs and performance, confirming the synergy that may exist in domestic markets. However, the literature generally indicates that RPTs are associated with firms' poor performance and value. As a result, the following research hypothesis is considered:

*Hypothesis 2.* There is a negative association between firm value and RPTs.

*Hypothesis 3.* There is a negative association between performance and RPTs.

Since RPTs are prevalent in emerging economies, due to failures in corporate governance and the widespread presence of family-controlled groups via pyramid structure and cross-holdings (Wang, Cho, and Lin 2019), we analyzed the effect of corporate governance on the RPTs.

Corporate governance is conceptualized as a way of mitigating the expropriation of minority shareholders. With this, it can moderate the negative effect of RPTs on the value of the firm, due to the reduction of tunneling activities (Black et al. 2015). By curbing the use of transactions considered complex (Souza and Bortolon 2014), it is expected that the increase in the level of investor protection, arising from corporate gover-



nance, will result in a lower probability of having pyramidal structures (Almeida and Wolfenzon 2006) and RPTs (Kang et al. 2014).

However, it should be noted that the two alternative views (conflict of interest versus efficient transactions) have significantly different implications for corporate governance. Gordon, Henry, and Palia (2004) report that, under the conflict of interest view, corporate governance mechanisms, such as those explored by the agency literature, will be less effective in reducing the extent of related party transactions. Under the efficient transactions view, corporate governance mechanisms would be positively related to these transactions (if such mechanisms contribute to efficiency), or would be unnecessary (and unassociated with related party transactions). Despite the variations mentioned in the impact of corporate governance on RPTs, the literature commonly associates better levels of corporate governance with less use of RPTs. Therefore, there is the last hypothesis:

*Hypothesis 4.* There is a negative association between corporate governance and RPTs.

The next section shows the methodology used to achieve the proposed objective.

### 3. Data and Methods

#### 3.1. Research design and sample selection

To achieve the proposed objective, we collected data from the Reference Form released by the Securities and Exchange Commission of Brazil (CVM) and extracted by the GetDFPData package (Perlin, Kirch, and Vancin 2019) in the R software, to identify the pyramid structures and calculate the indirect ownership of the controlling shareholder.

The analyzed period was from 2010 to 2017, resulting in an unbalanced panel with 929 observations in a sample of 153 companies. The period of analysis represents a time horizon that includes moments of prosperity (2010 to 2013) and crisis in the Brazilian economy (2014 to 2017), as shown in the national literature (Oreiro 2017; Barbosa Filho 2017).

We mapped companies annually, using, as criteria, the existence of, at least, one publicly traded intermediary company (Aldrighi, 2014; Aldrighi, Postali, and Diaz 2018; La Porta, Lopez-de-Silanes, and Shleifer 1999). Therefore, of the total number of companies publicly listed on the Brazilian stock exchange, by the criterion of authors, 153 have pyramidal ownership. The results report that, of these 153 companies, 97 companies have the intermediary listed as the largest direct shareholder (LAS), that is, which has the most representative percentage of common shares in the company.

The dependent variable (RPTs) is measured as the sum (monetary) of the related party transactions by company/year (Chen, Li, and Chen 2017; Silveira, Prado, and Sasso 2008; Souza and Bortolon 2014). The transactions are disclosed individually by the companies. For each one company, we executed the sum of the traded values in each of the research periods. The total value of the RTPs was inflated (IGP-DI index), using the natural logarithm for estimate the empirical models.

The cash flow rights (CFR) are measured as the product of the stakes (the sum of ordinary and preferred shares) in the intermediate companies' total capital along the ownership chain (Aldrighi 2014; Bortolon 2010; Carvalhal da Silva 2005). The shareholder's voting rights (VR) are calculated as their stake in the company's voting capital (ordinary shares) and measure depends on the existence of control. If the largest ultimate shareholder (LUS) is a controlling shareholder (holds at least 50% of the voting rights), the share of voting rights is equal to the direct stake that the last intermediary in the chain of ownership holds in the voting capital of the analyzed company. If the LUS is not a controlling shareholder, the calculation is identical to the portion of cash flow rights, that is, the product of the stakes in the ownership chain (Aldrighi 2014). The methodology is illustrated in the ownership chain of the company Energisa Mato Grosso, which belongs to the Energisa group (Figure 1).

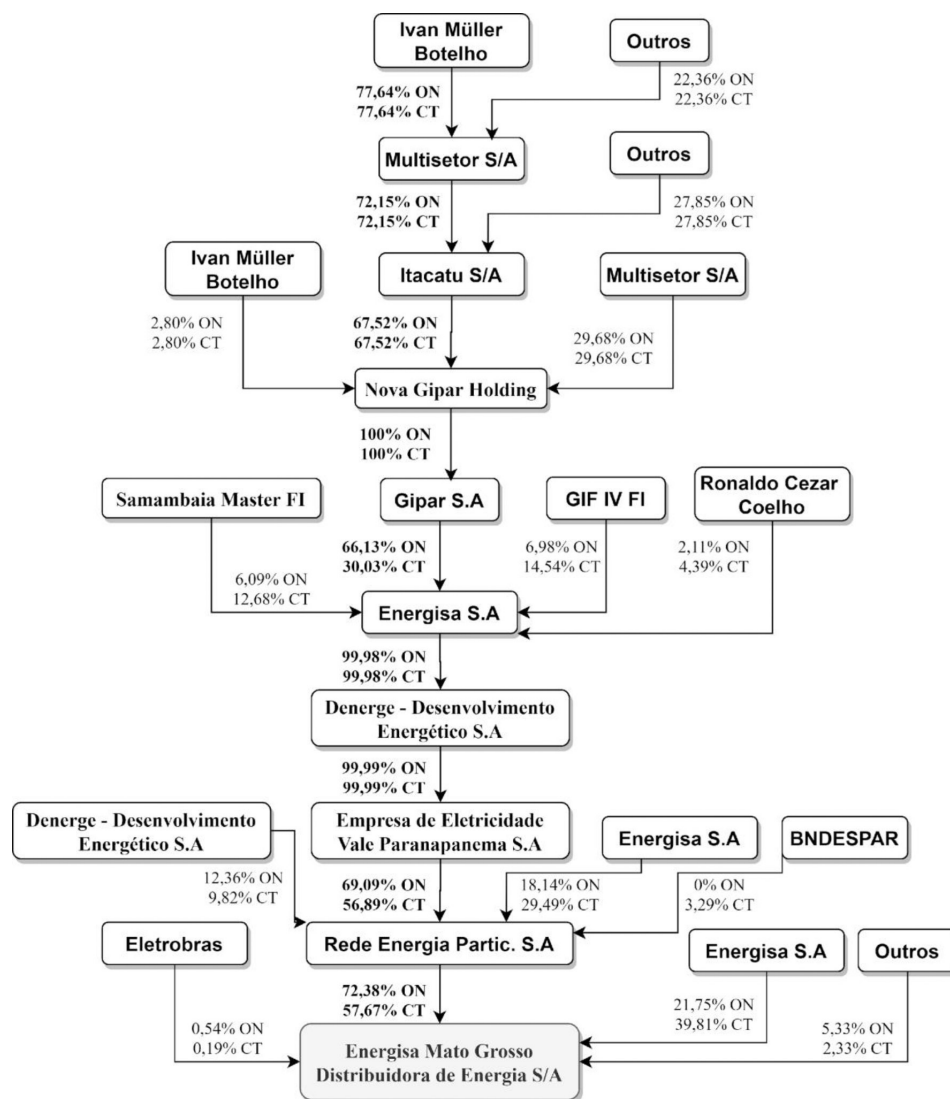


Figure 1 - Ownership Structure of Energisa Mato Grosso in 2017

Note: ON and CT are the acronyms used to differentiate voting rights (ON) and cash flow rights (CT).

Source: Developed by the authors (2022).

In the company, the majority direct shareholder is Rede Energia Participações S.A. In the entire indirect chain, the voting rights exceed 50%, demonstrating that control is maintained along the pyramidal structure. The cash flow rights are determined by the product of the equity interests in the companies along the chain, being a total of 3.72% ( $77.64\% * 72.15\% * 67.52\% * 100\% * 30.03\% * 99.98\% * 99.99\% * 56.89\% * 57.67\%$ ). Voting rights correspond to 72.38%, which is the direct participation of the last intermediary in the chain in the voting capital of the analyzed company (Aldrighi 2014). Therefore, the deviation (DEV) (68.66%) is calculated by the difference between voting rights (VR) and cash flow rights (CFR) ( $3.72\% - 72.38\%$ ). For cases with more than one listed company, the company(ies) that form the chain of the pyramidal structure was(were) maintained in the sample, based on the identification of the chain of control (at least 50% of the common shares).

To identify the effect of firm performance and the value of firms on RPTs, return on assets (ROA) and Tobin's Q (QT) were considered (Bona-Sánchez, Fernández-Senra, and Pérez-Alemán 2017; Kang et al. 2014; Maheshwari and Gupta 2018; Wang and Lin 2013), which are measures widely adopted in the literature for this purpose (Kang et al. 2014). Companies/year with Tobin's Q negative and greater than 10 were excluded, in order to minimize the problem associated with measurement errors of this variable (Kirch, Procianny and Terra 2014). As for the expected sign of these variables concerning the RPTs, it can be positive or negative. Companies with high performances and value can use RPTs to maintain/increase their results from the perspective of efficient transactions, which reduce costs (Wong, Kim, and Lo 2015). On the other hand, companies with financial restrictions will be more likely to use this type of operation to obtain opportunistic gains (Kang et al. 2014; Wang, Cho, and Lin 2019).

Corporate governance was analyzed as a way to mitigate the expropriation of minority shareholders. In this case, governance was measured considering three dummy variables: (1. NM) company adherence to the differentiated segment of the New Market (Aldrighi 2014; Andrade et al. 2014); (2. AuditCom) if the majority of the members of the audit committee are independent (Kang et al. 2014; Rahmat, Mohd Amin, and Mohd Saleh 2018; Lee et al. 2016); and (3. Big4) external audit performed by one of the four most prominent companies in the field (Deloitte Ernst and Young, KPMG or PricewaterhouseCoopers - PwC) (Bhuiyan and Roudaki 2018; Rahmat, Mohd Amin, and Mohd Saleh 2018; Lei and Song 2011).

Regarding the New Market variable, it is important to point out that this corporate governance segment was implemented in 2000 by the Brazilian stock exchange. The New Market is one of the levels of commitment to corporate governance in Brazil, which represents the adoption of 100% of the rules. In this case, companies belonging to the New Market can trade only one class of shares, which refer to common shares (Colombo and Galli 2010).

In this study, 35 companies belonging to the New Market were identified, totaling 161 observations in the period. On average, these companies are part of pyramidal structures with up to 2 layers of intermediary companies, and 60% of companies are controlled by individuals or families. Therefore, to measure voting rights, common shares were used. For the cash flow rights, the total capital (the sum of ordinary and preferred shares) is used. As New Market companies only issue shares with voting rights, the cash flow rights are obtained by the product of intermediary holdings in the chain of indirect ownership. When ownership is indirect, cash-flow rights are the product of the stakes in the intermediate companies' total capital along the ownership chain. If there are multiple ownership chains, it is the sum of all the products of the capital stakes in the companies along the respective chains (Aldrighi, Postali and Diaz 2018).

To complement the analysis, control variables were included. "Company size" (Size) was selected because larger companies are more likely to conduct a more significant number of RPTs (Kang et al. 2014; Khosa 2017). Leverage (LEV) is related to performance issues and monitoring on the part of creditors (Aldrighi, Postali, and Diaz 2018; Maheshwari and Gupta 2018). Firms with vulnerable financial positions tend to participate in RPTs to overcome difficulties (Bhuiyan and Roudaki 2018). On the other hand, leverage may imply greater monitoring on the part of creditors (Aldrighi 2014), a situation that could decrease RPTs (Matos and Galdi 2014).

As for tangibility (TANG), fixed assets can serve as guarantees in RPTs (Aldrighi, Postali, and Diaz 2018; Souza and Bortolon 2014), and, therefore, a positive relationship is expected between tangibility and the greater occurrence of these contracts. Intangible assets are more difficult to monitor and, consequently, may be subject to management decisions (Himmelberg, Hubbard and Palia 1999), facilitating RPTs. Regarding foreign capital (FC), companies with foreign shareholders are expected to engage in more transactions with each other (Cheung et al. 2009). Table 1 summarizes the variables, showing the abbreviations, measurements and expected sign.

Table 1 - Description of dependent, independent and control variables

Variable	Abbreviation	Measure	References	ES
<b>Variable dependent</b>				
Total value RPTs	RPTs	Log (RPTs) company/year.	Matos and Galdi (2014); Silveira, Prado, and Sasso (2008)	
<b>Variables independents</b>				
Deviation	DEV	Log Deviation= $VR^1 - CFR^2$	Aldrighi (2014); Aldrighi, Postali, and Diaz (2018)	+
Return on assets	ROA	$ROA = \frac{\text{Operating income}}{\text{Total assets}}$	Maheshwari and Gupta (2018); Wang, Cho, and Lin (2019)	+ or -
Tobin's Q	QT	$QT = \frac{\text{Market value of equity} + \text{Book value of debt}}{\text{Total assets}}$	Bona-Sánchez, Fernández-Senra, and Pérez-Alemán (2017); Maheshwari and Gupta (2018)	
New Market <sup>3</sup>	NM	Dummy, where 1 indicates the firms listed on the New Market and 0 otherwise.	Aldrighi, Postali, and Diaz (2018)	
Big Four	Big4	Dummy, where 1 indicates that the company is audited by one of Big 4; 0 otherwise.	Bhuiyan and Roudaki (2018); Rahmat, Mohd Amin, and Mohd Saleh (2018).	-
Audit committee <sup>4</sup>	AuditCom	Dummy, where 1 indicates if the majority of the members of the audit committee are independent; 0 otherwise.	Kang et al., (2014); Rahmat, Mohd Amin, and Mohd Saleh (2018).	
<b>Control variables</b>				
Size	Size	Logarithm of net sales.	Kang et al. (2014)	+
Leverage	LEV	$LEV = \frac{\text{Short and long term debt}}{\text{Total assets}}$	Aldrighi, Postali, and Diaz (2018); Maheshwari and Gupta (2018)	+ or -
Tangibility	TANG	$TANG = \frac{\text{Fixed asset}}{\text{Total asset}}$	Aldrighi, Postali, and Diaz (2018); Souza and Bortolon (2014)	
Foreign capital	FC	Dummy, where 1 indicates ordinary and/or preferred shares owned by foreign capital; 0 otherwise.	Cheung et al. (2009)	+
Sector Fixed effects		Dummies, where 1 indicates the sector; 0 otherwise	Bona-Sánchez, Fernández-Senra, and Pérez-Alemán (2017)	
Temporal Fixed effects		Dummies, where 1 indicates the year; 0 otherwise	Kang et al. (2014)	

This table provides the of dependent, independent and control variables. The RPTs variable considered the period of reference disclosed by the companies and not specifically the transaction date, as many transactions remain active for the long term. Note: <sup>1</sup>VR: voting rights from the existence of the control; <sup>2</sup>CFR: cash flow rights; <sup>3</sup>New Market is the translation for "Novo Mercado," which represents the special listing segment of the Brazilian stock exchange [B3]. <sup>4</sup>Audit committee: companies without an audit committee assumes zero value. ES (expected sign) corresponds to the association between dependent and independent variables. The expected sign is based on the empirical literature review.

Source: Developed by the authors (2022).

### 3.2. Econometric analysis

The control-ownership wedge (from the indirect structure) was measured by the difference between voting and cash-flow rights. The chain of ownership of the company's controlling shareholder was used, which plays a crucial role in the company's strategic decision process (Maheshwari and Gupta 2018).

The following Equation (1) was used to test the main hypothesis:

$$RPTs_{i,t} = \alpha_i + \beta_1 DEV_{i,t} + \beta_2 ROA_{i,t} + \beta_3 QT_{i,t} + \beta_4 NM_{i,t} + \beta_5 Big4_{i,t} + \beta_6 AuditCom_{i,t} + \beta_7 Control_{i,t} + \sum_t^n EFsec_i + \sum_t^n EFtemp_t + \varepsilon_{i,t}$$

The  $RPT_{i,t}$  represent the total value of related parties transactions over time;  $\alpha_i$  is the intercept,  $\beta$  are variable coefficients,  $DEV_{i,t}$  the control-ownership wedge of the pyramidal ownership,  $ROA_{i,t}$  the performance,  $QT_{i,t}$  the firm value,  $NM_{i,t}$  the New Market,  $Big4_{i,t}$  the Big Four,  $AuditCom_{i,t}$  the Audit Committee,  $Control_{i,t}$  are the control variables (Size, LEV, TANG, FC),  $EFsec$  represents sector fixed effects,  $EFtemp$  represents fixed temporal effects,  $\varepsilon_{i,t}$  and is the error term.

The model was estimated from OLS fixed effects with robust standard errors, where it is assumed that the errors are independent between individuals and that is heteroscedastic (Fávero 2013). The application of OLS has some assumptions. For model validity, the residues must have a normal distribution (Jarque-Bera test); explanatory variables must not be correlated (VIF); non-correlation of residues with any independent variable (Wald test); and randomness and independence of residues (Wooldridge test). We adjust outliers in panel data analysis by winsorization (5% level).

For the robustness of the results, a quantile regression was estimated. The methodological justification for applying this method is the different levels that the RPTs can reach, estimating several regression lines for different associated quantiles. Thus, for example, we can analyze the effect of each level of the independent variables on the respective levels of values of the RPTs. For the quantile regression analysis with fixed effects, we applied Machado and Santos Silva (2019) estimator, which is useful for panel data with individual effects and models with endogenous explanatory variables.

This estimator was recently developed, and we did not find any application of this method in Brazil. Therefore, the empirical contribution consists in applying the quantile regression method to panel data. It is an updated and appropriate estimator for longitudinal analyses. In quantile regression, we use outliers because the method is robust to these values. Both estimates we calculated using Stata® software.

#### 4. Empirical Analysis and Discussion

This section was divided into three parts to better understand the results of the study: (i) Sample characterization and descriptive statistics; (ii) RPTs and control-ownership wedge; and (iii) robustness analyses.

##### 4.1. Sample characterization and descriptive statistics

By identifying the largest ultimate shareholder (LUS) of the companies, we could classify the representativeness of individuals and families throughout the period, corroborating with the literature (Almeida and Wolfenzon 2006; Khanna and Palepu 2000; Khanna and Yafeh 2007; La Porta, Lopez-de-Silanes, and Shleifer 1999).

We analyzed the total number of existing levels (or layers) in pyramidal ownership. For these levels, the sum between the largest direct shareholder and the largest indirect shareholder (including them in the sum) was considered. We identified pyramidal structures with up to 9 levels (1.40%), with the majority being at levels 1 (15.18%), 2 (24.65%), 3 (24.11%), and 4 (12.06%). To identify the degree of indirect ownership (Aldrighi 2014), the sum was only of the intermediaries, identifying chains with up to 7 intermediaries (1.40%). Table 2 reports the descriptive statistics of the RPTs and other variables used in the study.



Table 2 - Descriptive Statistics

Statistics	RPTs	DEV	ROA	QT	Size	LEV	TANG
<b>Mean</b>	20.382	0.315	0.059	0.951	27.420	0.536	0.118
<b>Median</b>	20.298	0.195	0.059	0.778	27.760	0.583	0.004
<b>p10</b>	16.869	0.000	-0.082	0.265	24.103	0.126	0.000
<b>p25</b>	18.880	0.000	0.007	0.557	26.216	0.330	0.000
<b>p75</b>	22.358	0.614	0.121	1.097	29.155	0.739	0.160
<b>p90</b>	23.969	0.904	0.216	1.865	30.007	0.872	0.455
<b>Variance</b>	6.372	0.119	0.013	0.489	4.884	0.071	0.039
<b>Minimum</b>	15.364	-0.001	-0.224	0.076	22.267	0.028	0.000
<b>Maximum</b>	24.596	0.942	0.278	3.059	30.450	0.957	0.651
<b>SD</b>	2.524	0.345	0.115	0.699	2.210	0.267	0.198
<b>Asym.</b>	-0.179	0.669	-0.420	1.641	-0.742	-0.375	1.663
<b>Kurt.</b>	2.358	1.906	3.549	5.533	2.868	2.130	4.430

Note: RPTs: natural logarithm of the total value in reais of related party transactions; Deviation: deviations according to the existence (or not) of the LUS controlling shareholder; ROA: return on assets; QT: Tobin's Q; Size: natural logarithm of the net sales; LEV: leverage in relation to total assets; Tang: tangibility. The statistics correspond to: mean, median (p50), deciles ranging from 10 to 90, variance (Var.), minimum (Min.), maximum (Max.), standard deviation (S.D.), Asymmetry (Asym.) and Kurtosis (Kurt). The data for the variables in this table were winsorized at the 5% level. Source: Developed by the authors (2022).

The results reported that the total average value of the transactions is R\$ 5.7 billion. For insertion in longitudinal models, the variable was transformed into a logarithm, showing that the mean and median are close. On average, the deviation between control and ownership is 0.31, considering the calculation of the existence of control. For the minimum values, it is noticed the presence of negative values, demonstrating that the cash flow exceeded the voting rights. We tested the correlation between the variables, and the results were adequate (Table 3).

Table 3 - Correlation of Variables

	RPTs	DEV	ROA	QT	NM	Big4	AuditCom	Size	LEV	TANG	FC
<b>RPTs</b>	1										
<b>DEV</b>	0.138	1									
<b>ROA</b>	-0.047	0.032	1								
<b>QT</b>	0.025	-0.031	-0.013	1							
<b>NM</b>	0.182	-0.085	0.037	0.341	1						
<b>Big4</b>	0.107	0.067	0.241	0.008	0.011	1					
<b>AuditCom</b>	0.202	-0.040	-0.031	0.210	0.223	0.037	1				
<b>Size</b>	0.177	0.011	-0.008	-0.043	0.105	-0.017	0.156	1			
<b>LEV</b>	0.156	0.030	-0.193	0.132	-0.127	-0.174	0.040	0.161	1		
<b>TANG</b>	0.164	0.062	0.060	-0.080	-0.042	0.047	-0.027	0.134	0.046	1	
<b>FC</b>	0.110	0.059	-0.000	0.148	0.171	-0.016	0.118	0.098	-0.177	-0.017	1

Note: RPTs: natural logarithm of the total value in reais of related party transactions; Dev: deviations according to the existence (or not) of the LUS controlling shareholder; ROA: return on assets; QT: Tobin's Q; NM: dummy for presence in the new market; Big4: dummy for companies audited by the 4 large auditing companies; Audit: dummy for the majority of the members of the audit committee are independent; Size: natural logarithm of the net sales; Lev: leverage in relation to total assets; Tang: tangibility; FC: dummy for the presence of foreign capital in the control structure and ownership structure.

Source: Developed by the authors (2022).

#### 4.2. RPTs and control-ownership wedge

We started the analysis with the application of panel data models, testing their differentiations (grouped, fixed, and random) using the Hausman test. The test results reported that a hypothesis of random effects was rejected (p-value 0.000), and then, the regression with fixed effects is indicated. As already demonstrated in the descriptive statistics, some variables do not have a normal distribution pattern, and the models are robustly estimated (Fávoro 2013). The results are shown in Table 4.

Table 4 - RPTs according to control-ownership wedge, firm value, performance, and corporate governance

Variable	Abbreviation	Coefficient	Standard Deviation
<b>Dependent variable: Log total value RPTs</b>			
Intercept		<b>1.809**</b>	-
Deviation	DEV	<b>0.020***</b>	(0.004)
Return on assets	ROA	-0.007	(0.005)
Tobin's Q	QT	-0.018	(0.017)
New Market	NM	0.057	(0.046)
Big Four	Big4	0.076	(0.051)
Audit committee	AuditCom	<b>0.162***</b>	(0.028)
Size	Size	0.013	(0.021)
Leverage	LEV	0.086	(0.096)
Tangibility	TANG	0.076	(0.055)
Foreign capital	FC	<b>0.080*</b>	(0.036)
Sector		Yes	
Year		Yes	
Number of obs.		400	
R <sup>2</sup>		0.154	
Jarque-Bera		6.340	
<i>p-value</i>		0.042	
T.Wald		3.300	
<i>p-value</i>		0.000	
T.Woodridge		1.879	
<i>p-value</i>		0.175	
Mean VIF		1.160	

Note: \*p-value < 0.1, \*\*p-value < 0.05, \*\*\*p-value < 0.01. This table presents the results of regression model with panel data estimated with the robust OLS fixed effects. Winsorization at 5% level. The model corresponds to the analyze of the determinants of RPTs. The standardized coefficient and the standard deviation are shown.

Source: Developed by the authors (2022).

In the model, the distribution of residues is normal, according to the Jarque-Bera test, at the 95% level. In the Wald test, it was found that the data are heteroscedastic. For the assumption of multicollinearity, the variance inflation factor was tested, in which the data are adjusted, with values close to 1.

The results reported that there is a positive influence on the deviation (control-ownership wedge) measured by the existence (or not) of the LUS controlling shareholder. A 1% increase in deviation positively affects the total value of RPTs by 0.02%, at a significance level of 1%. These results confirm hypothesis 1 of the study and corroborate the literature (Bertrand, Mehta, and Mullainathan 2002; Huyghebaert and Wang 2012; Kang et al. 2014; Maheshwari and Gupta 2018). For these authors, RPTs become more extensive as the gaps between voting and cash flow rights increase. Therefore, such operations can be a channel for expropriation and reduction of the company's value, since the deviation makes it possible to maintain control.

To measure performance and firm value, we use return of asset and Tobin's Q, respectively. Tobin's Q is widely used as a measure of firm value in the existing literature (Kang et al. 2014). The results reported that there is not significant. Thus, hypotheses 2 and 3 are not confirmed.

The significant independent variable for this model is the audit committee. In the control variable, foreign capital is significant. Both have a positive relationship with the RPTs, demonstrating that audit committee with independent majority members and the participation of foreign shareholders generates an increase in the amount traded. The positive effect of the presence of foreign capital corroborates the expected sign.

For audit committee, the expected signal was not confirmed, because had a positive association with the value of RPTs. This result may be associated with the fact that governance variables have a limited impact on the prices of RPTs with controlling shareholders (Cheung, Jing et al. 2009) and that the regulation on corporate governance in Brazil still needs to be improved (Andrade 2015).

Black et al. (2015) show that governance can potentially affect RPTs in two distinct ways. First, better-governed firms generally engage in less RPTs. Second, governance could affect the pricing of the RPTs that firms

engage in. The authors analyzed the first perspective, identifying that the coefficients for the governance index are small, statistically insignificant and positive. Therefore, the effect of governance on RPT volume could mean that governance is ineffective in controlling RPTs (Black et al. 2015).

Corporate governance was not so efficient in reducing RPTs, because there is a positive relationship between these variables. We inferred that, due to the characteristics of the companies and the Brazilian scenario, governance is not able to reduce the volume of transactions. In line with our results, the two alternative views for RPTs may have different associations with corporate governance (Gordon, Henry, and Palia 2004), showing negative, positive, or not necessarily an association between both.

Moreover, Black et al. (2015) found no effect of corporate governance on the volume of RPTs. They reported that there is an effect of tunneling on firm value, which is mediated by governance. Li (2010) analyzed RPTs as a vehicle for tunneling, reporting that privately controlled public companies have a higher probability of tunneling, and better corporate governance structure. To check the robustness of the results in panel data, we perform a quantile regression. The results are in section 4.3.

### *4.3. Robustness analyses*

To complement the study, we analyze the influence of the control-ownership wedge on each quantile of the RPTs. Table 5 report these results, showing the coefficients and their significance in each of the quantiles used (10%, 25%, 50%, 75%, and 90%).

Table 5 - Determinants of RPTs: control-ownership wedge, firm value, performance, and corporate governance

Variable	Abbreviation	Dependent Variable: Log total value RPTs				
		0,10	0,25	0,50	0,75	0,90
Deviation	DEV	<b>0.021*</b>	<b>0.020***</b>	<b>0.020***</b>	<b>0.019***</b>	<b>0.019**</b>
	SD	(0.012)	(0.008)	(0.005)	(0.006)	(0.009)
Return on assets	ROA	<b>-0.015***</b>	<b>-0.010***</b>	<b>-0.006***</b>	-0.003	0.000
	SD	(0.005)	(0.003)	(0.002)	(0.003)	(0.004)
Tobin's Q	QT	-0.025	-0.021	-0.017	-0.013	-0.010
	SD	(0.037)	(0.023)	(0.016)	(0.019)	(0.027)
New Market	NM	<b>0.188**</b>	<b>0.118**</b>	0.047	-0.005	-0.055
	SD	(0.090)	(0.058)	(0.040)	(0.048)	(0.068)
Big Four	BIG4	-0.033	0.024	0.084	<b>0.128**</b>	<b>0.169*</b>
	SD	(0.120)	(0.077)	(0.052)	(0.063)	(0.090)
Audit Committee	AuditCom	<b>0.300***</b>	<b>0.226***</b>	<b>0.151***</b>	<b>0.096**</b>	0.043
	SD	(0.076)	(0.049)	(0.034)	(0.040)	(0.057)
Size	Size	0.004	0.009	<b>0.013**</b>	<b>0.016**</b>	<b>0.019*</b>
	SD	(0.014)	(0.009)	(0.006)	(0.007)	(0.011)
Leverage	LEV	0.198	0.138	0.078	0.033	-0.009
	SD	(0.152)	(0.097)	(0.066)	(0.080)	(0.114)
Tangibility	TANG	<b>0.233**</b>	<b>0.149**</b>	0.064	0.001	-0.057
	SD	(0.105)	(0.068)	(0.046)	(0.055)	(0.078)
Foreign capital	FC	0.015	0.049	<b>0.085**</b>	<b>0.111***</b>	<b>0.135**</b>
	SD	(0.085)	(0.054)	(0.037)	(0.045)	(0.063)
Year		Yes	Yes	Yes	Yes	Yes
Number of obs.				400		

Note: \*p-value < 0.1, \*\*p-value < 0.05, \*\*\*p-value < 0.01. This table presents the results of the quantile regression model with a fixed panel for the deviation; SD: standard deviation. Ramsey RESET Test: p-value 0.3440. Quantiles: (0,10) 10%; (0,25) 25%; (0,50) 50%; (0,75) 75%; (0,90) 90%.

Source: Developed by the authors (2022).

Estimation results show that the positive association between RPTs and a control-ownership wedge is present in all quantiles, confirming hypothesis 1. An increase of 1% in deviation will also increase the total value of RPTs of approximately 0.02%, with significance levels ranging from 10% in the first quantile, increasing to 1% in the intermediaries and decreasing to 5% in the last quantile.

The quantile regression coefficients ratify the effect found in panel data, showing consistency across quantiles. Thus, the result strengthens the conclusion that, even with variation in the level of RPTs, the deviation of rights will have a positive effect of approximately 0.02%. It should also be noted that the impact of deviations on the total value of the RPTs is statistically more significant at the 25%, 50% and 75% quantiles (significance level 1%). Therefore, the total value of the RPTs is impacted by the difference between control and property, with less statistically significant effects in the first and last quantiles. The results corroborate the literature, considering that the high concentration of ownership increases the probability of occurrence of RPTs (Hu, Shen and Xu 2009).

This direct relationship is expected by the literature, since the deviation of rights can represent a form of expropriation of minority shareholders via incentives for transactions (Fang et al. 2017). The controlling shareholders will be able to enjoy their control rights using RPTs as a channel for transaction of resources, which will be able to guarantee private benefits (*conflict of interest view*) through tunneling operations (Berkman, Cole, and Fu 2009; Bertrand, Mehta, and Mullainathan 2002; Huyghebaert and Wang, 2012).

We observe that ROA has a significantly negative effect on RPTs. The ROA was significant in the 10%, 25% and 50% quantiles. However, the coefficients have a decreasing trend. In a company with a low level of RPTs (as in quantiles 10 and 25), an increase in profitability suggests a decrease in this level of RPTs. Therefore, firms with a high level of RPTs (quantile 50) are less influenced when there is an increase in ROA. In general, this result corroborates with the literature, demonstrating that less profitable companies have incentives to participate in RPTs (Bansal and Thenmozhi 2020; Bhuiyan and Roudaki 2018; Kang et al. 2014), confirming hypothesis 3.

The results report that corporate governance is also a determinant of RPTs. However, the positive results for the variables (Audit Committee, Big Four and New Market) contradict the expected sign that governance

can be a moderating variable in reducing RPTs. For the audit committee, the impact on RPTs is decreasing along the quantiles, ranging from 0.3% to 0.09%. Therefore, the majority of independent members on the audit committee do not negatively influence the reduction of RPTs. For the Big Four and New Market variables, the influence on RPTs is also positive. However, the impact of the external audit (Big4) is only significant in the upper quantiles (75% and 90%), while adherence to the New Market is in the lower quantiles (10% and 25%).

The coefficients of the Big4 variable are increasing, having an initial negative effect on the RPTs, however, not statistically significant. Therefore, the external audit positively influences the value of RPTs, ranging from 0.12% to 0.16%. This result may be associated with the fact that corporate governance variables have a limited impact on RPT prices (Cheung, Qi et al. 2009).

In the New Market variable, the behavior of the coefficients is decreasing. The results report a positive and significant influence on the total value of RPTs in the first quantiles (10% and 25%), ranging from 0.18% to 0.11%. It should be noted that adherence to the New Market has different behaviors over the quantiles. It ceases to have statistical significance in the upper quantiles, in which the coefficients become negative, which would indicate a reduction in the total value of the RPTs. However, this effect is not statistically significant. To complement the analysis, we show the average of the total value of RPTs transacted by the companies that make up the New Market in the sample. The results are presented in Figure 2.

The results report the RPTs of the 35 companies with a pyramidal structure that make up the New Market corporate governance segment. Some companies joined the New Market in the last periods of analysis, therefore, there are fewer transactions specified in the Figure. The average of transactions carried out by companies in this segment alone is R\$ 5.4 billion. However, some companies stand out (Banco Pan, CPFL Energia, Petrobras and Vale), transacting higher amounts, which exceed R\$ 20 billion. In general, the results report that New Market companies use RPTs, concluding, from the quantile regression model, that belonging to this segment positively influences the total value of RPTs.



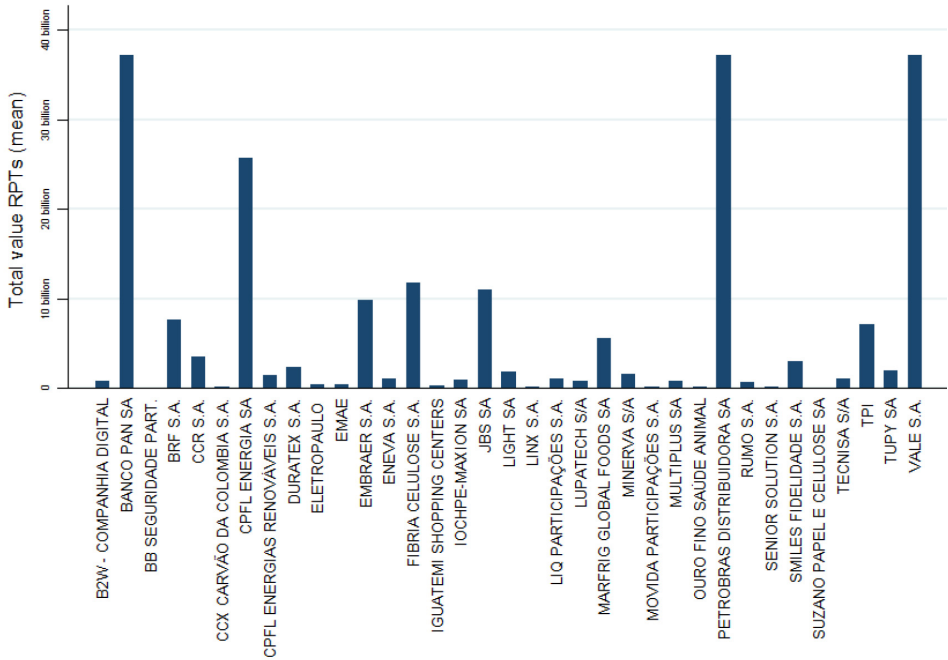


Figure 2 – Firms listed on the New Market and Total Value RPTs

Source: Developed by the authors (2023).

Therefore, the specific regulations of corporate governance in Brazil, such as the New Market, had different results from the expected sign in the literature, not confirming hypothesis 4. We report that corporate governance did not reduce the value of the transactions (Yeh, Shu, and Su 2012), because there is a positive relationship between corporate governance and RPTs. For that fact, corporate governance alone may not be sufficient to protect minority shareholders (Li 2010). Or, this result can be justified by the efficient transactions vision, in which corporate governance mechanisms can be positively associated with RPTs (Gordon, Henry and Palia 2004).

For control variables, the size demonstrated statistical significance at the highest quantiles (50%, 75%, 90%). The positive sign corroborates with the literature because larger companies tend to have a higher volume of RPTs (Bansal and Thenmozhi 2020; Kang et al. 2014). For tangibility, there is also a positive relationship with the value of RPTs. The significant coeffi-

cients are in the 10% (0.2331) and 25% (0.1494) quantiles, showing that the presence of fixed assets can increase the value of transactions.

Our model also demonstrated that there is a positive relationship between the presence of foreign shareholders and the value of RPTs in the 50%, 75%, and 90% quantiles. Thus, the presence of foreign shareholders can be one way to encourage the use of RPTs (Cheung, Jing et al. 2009).

Based on this robustness analysis, we conclude that control-ownership wedge, performance and corporate governance are of the determinants of the volume of RPTs in companies with a pyramidal structure.

## 5. Conclusions

The present research aimed to analyze the influence of control-ownership wedge, firm value, performance, and corporate governance in the value of Related Party Transactions (RPTs) of companies with pyramidal structures. In the framework of the agency's theory, with different interests between the parties, conflicts between majority and minority shareholders may occur. Therefore, the controllers will be able to use mechanisms that maintain/increase their voting power, a situation that may reduce the company's value and expropriate minority shareholders. Among the mechanisms, we analyze the formation of pyramidal structures and the related party transactions. As a differential, we check the determinants of related party transactions, based on companies that have pyramidal ownership. Despite this interest in related party transactions, there is limited academic research to understand the nature of related party transactions and their economic consequences (Gordon, Henry, and Palia 2004). Therefore, the research differs and theoretically contributes to the literature on this topic.

We inferred that there is a relationship between RPTs and the control-ownership wedge. The influence can be captured through models with panel data also estimated by quantile regression. For the deviation, calculated from the perspective of the existence of a major controlling shareholder (methodology used in Brazilian literature), the results were significant for all quantiles, not rejecting Hypothesis 1. Despite the impact of de-

viations on all quantiles, the magnitude of the coefficients does not vary. Therefore, the total value of the RPTs increases, but the impact of the deviation remains at approximately 0.02%. As for the effect of the firm's performance on RPTs, a negative influence was found. The effect is significant for the 10%, 25% and 50% quantiles. Companies with limited results may resort to these operations in order to improve their performance (hypothesis 3 is supported).

In the present study, corporate governance was not very efficient in reducing RPTs (hypothesis 4 not supported), since its coefficients, in most models, were positive. We inferred that, due to the characteristics of the companies (such as size) and the Brazilian scenario, the governance variables are not able to reduce the volume of transactions. Some previous evidence has also shown that governance mechanisms have little impact on RPTs (Black et al. 2015; Li 2010), with their results still inconclusive (Cheung Qi, Raghavendra Rau, and Stouraitis 2009; Oda 2011).

The empirical contribution is in the use of a sample of companies with pyramidal ownership and incorporation of another expropriation channel, related party transactions. This is a theme with little evidence in Brazil, either due to the recent mandatory disclosure (2010) or due to the access and treatment of data. There are many variables of a qualitative nature and a lack of standardization in the way of disseminating them. There is an omission of information since many RPTs are only disclosed in a general way.

The study contributes to the literature by demonstrating the differences between control and ownership in Brazil in a longitudinal study. The existence of a controlling shareholder listed in the companies studied may facilitate the performance of transactions with private benefits since both will have direct access to the capital market. Therefore, regulators need to consider firm characteristics (ownership structure) before making any decision, because these factors can determine the nature of the RPTs (Bansal and Thenmozhi 2020).

The general limitations are inherent to the application of research methods, which are susceptible to the endogeneity, present in the studies of corporate governance. Another intrinsic limitation to work is the definition of variables, such as the use of dummies for some aspects of the paper. As suggestions for future research, more descriptive work can be done about RPTs. Due to the amount of qualitative information, RPTs can be separated by their nature and verified by their determinants.

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