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# Related Party Transactions and firm value: the role of governance mechanism

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**ABSTRACT**

The research on Related Party Transactions (R.P.T.s) shows that the impact of R.P.T.s is context dependent and there is no consensus on the findings of available studies. This study aims to examine the impact of R.P.T.s on firm value in Indian context and the interaction effect of governance mechanism on the relationship between R.P.T.s and firm value. A sample of 2,294 firms consisting of 685 group affiliated firms and 1,609 standalone firms for a period of 2014–2021 has been selected and panel data regression method has been applied for testing the hypotheses. The empirical findings of the study support the transaction efficiency hypothesis that R.P.T.s in India do not expropriate the interest of minority shareholders and these transactions enhance efficiency of the firm by reducing transaction cost, enforcing optimal business contracts and effectively allocating resources between affiliated firms. The findings of the study also provide significant contribution to the literature by examining the interaction effect of governance mechanism on the relationship between R.P.T.s and firm value.

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Related Party Transactions (R.P.T.s); transaction efficiency; conflicts of interests; arm's length price; firm value; corporate governance

**JEL**
M48; M41; G30

## 1. Introduction

A Related Party Transaction (R.P.T.) is a transfer of resources, services, or obligations between a reporting entity and a related party, regardless of whether a price is charged (IAS 24). R.P.T.s may violate the principle of arm's length pricing that the controlling shareholders may use to divert firm resources for their benefit (Chen et al., 2011; Elkelish, 2017; Gordon, Henry, & Palia, 2004). The corporate failures like Satyam fraud, Enron failure, Tyco failure show that R.P.T.s are driven by the conflicts of interests between majority shareholders and minority shareholders. Another dimension of R.P.T.s is that they are considered efficient business transactions because R.P.T.s reduce transaction cost and create an internal market within corporate groups (El-Helaly,

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2016). R.P.T.s of firms which have more group affiliated firms that share similar industry characteristics are more likely driven by transaction cost concern than expropriation (Wang et al., 2019). Wang et al. (2020), Hwang and Kim (2016), Downs et al. (2016) and Yaron et al. (2016) claim that R.P.T.s do not have any negative impact and these are transactions which reduce the cost and improve firm performance. R.P.T.s have a negative impact if these transactions are the result of the conflict of interest between majority and minority shareholders. The effect of R.P.T.s is that they increase the role of policymakers and auditors to control harmful R.P.T.s and facilitate R.P.T.s which increase firm's efficiency (Rasheed et al., 2021). Wang et al. (2019) and Supatmi et al. (2021) found a negative impact of R.P.T.s on firm value but Hope and Lu (2019) and Wang et al. (2020) found that R.P.T.s have an impact on efficiency and, Diab et al. (2019) claim that R.P.T.s are not correlated with the firm value. The impact of R.P.T.s is not universal and varies between countries with different system of governance, ownership structure, presence of business groups, and level of capital market development (Diab et al., 2019; Wang et al., 2019). The findings of governance practices show that improved governance reduces expropriation via R.P.T.s (Hope et al., 2019) and weaker governance mechanism has a positive impact on the R.P.T.s (Gordon, Henry & Darius, 2004). The board characteristics such as, C.E.O. performance, sensitivity and outside monitors are the major factors which moderate the impact of R.P.T.s on firm value (Gordon, Henry, & Palia, 2004). This evidence shows that better governance system is necessary for monitoring R.P.T.s, and the policy measures must be capable of controlling harmful R.P.T.s and are able to facilitate R.P.T.s which enhance the efficiency of operation.

Although many questions and uncertainties about the nature and impact of R.P.T.s exist, there are a few academic pieces of research to confirm the impact of different types of R.P.T.s on firm value and the interaction effect of internal governance mechanism on the relationship between R.P.T.s and firm value. The study on the impact R.P.T.s is relevant especially in India where ownership is concentrated and business groups rule various sectors of the economy (Rasheed et al., 2019). Business groups have a tendency to transfer resources from high performing firms to other firms via R.P.T.s (Jia et al., 2013) and a firm with higher number of affiliated firms having similar industry characteristics are more associated with transaction efficiency concern than expropriation (Wang et al., 2019). Rasheed and Mallikarjunappa (2021) prove that R.P.T. in India is positively associated with earnings management practices. This study analyses the impact of R.P.T.s in Indian context to examine whether R.P.T.s in India are efficient and increase the market value of the firm or R.P.T. is a tool used by the insiders to manage firm's resources for their private benefits. The study addresses the following research objectives.

- To analyse the impact of R.P.T.s on firm value in Indian context.
- To examine the interaction effect of board structure on the relationship between R.P.T.s and firm value in Indian context.

The board structure consisting of various characteristics of board of directors is used as a measure of governance mechanism. The findings of the study add to the

literature by providing significant statistical and theoretical evidence on the impact of governance mechanism on the relationship between R.P.T.s and firm value. The findings of the study are also a statistical evidence of agency theory. The findings of the study will be useful to the policymakers to know and analyse the effectiveness of the R.P.T. regulations and monitoring mechanisms. Regulators can also use the results to know which type of R.P.T. has to be controlled and which type of R.P.T. has to be promoted. The findings of the study will be useful for the investors to analyse their perception about R.P.T.s.

The rest of the article is structured as follows. Section 2 provides a review of the available studies and hypotheses development. Section 3 explains samples, variables, and research methodology. Section 4 deals with empirical findings and discussions. Section 5 highlights the major findings, limitations, and implications for further research.

## 2. Literature review and hypotheses development

The transaction efficiency hypothesis says that R.P.T.s enhance efficiency by reducing transaction cost, enhance optimal business contracts through deeper knowledge about related parties. On the contrary conflict of interest hypothesis suggests that R.P.T.s are used by insiders to manage firm's resources for their interests and, there are empirical and theoretical evidence for the two hypotheses. Nekhili and Cherif (2011), Bona-Sánchez et al. (2017), Habib et al. (2017a) and Supatmi et al. (2021) proved that controlling shareholders use R.P.T.s to expropriate firms resources, and there is a negative effect of R.P.T.s on firm value. Alhadab et al. (2020) and Diab et al. (2019) claim that there is no association between R.P.T.s and firm value. Hope and Lu (2019) and Wang et al. (2020) find that R.P.T.s facilitate the transfer of resources between affiliates at lower costs and improve firm market value. The impact of R.P.T.s varies across countries with different institutional settings, regulatory environment, level of capital market development. Further, the impact of R.P.T.s on firm value depends on the context in which firm enters into the transactions rather than being universal (Agnihotri & Bhattacharya, 2019; Alhadab et al., 2020). While considering the factors which determine the nature of R.P.T.s suggested by the previous studies, R.P.T.s in India are likely to be driven by transaction cost concern and therefore, we develop the following research hypothesis.

$H_1$: R.P.T.s increase firm value

The dual effect of R.P.T.s gives special attention to regulators for framing policies to control harmful R.P.T.s and to encourage efficient transfer of resources between related parties. Corporate governance mechanisms especially the board structure has an impact on R.P.T.s (Hope et al., 2019; Yeh et al., 2012). Chien and Hsu (2010) proved that board independence has a positive interaction effect on the impact of R.P.T.s on firms' performance. Hu et al. (2012) proved that that ownership structure, outside directors' compensation, and dual role of C.E.O. increase the volume of cross border R.P.T.s but the presence of more indepenednt directors on the board reduces the volume of cross border R.P.T.s. Daie and Hasnan (2012) found that the presence of more independent directors on the board can mitigate the adverse effect of R.P.T.s and Chauhan et al. (2016) suggests that better governance practices can control self-

dealing transactions which are harmful to firm performance. Based on this research evidence we develop the following research hypothesis.

H2: Board structure interact on the impact of R.P.T.s on firm value.

### 2.1. Board structure

There is a chance for conflict of interests and disharmony between the majority shareholders and minority shareholders if the managers are motivated by self-interest (Jian & Wong, 2003). The Board structure has a significant role in controlling the abusive R.P.T.s (Chauhan et al., 2016; Chien & Hsu, 2010; Elhelaly, 2014; Hu et al., 2012). In this study board structure means the following characteristics of the board.

#### 2.1.1. Board size

The complexity associated with the decision-making process, the effectiveness of decisions and strategies are largely influenced by the board size (Kumar & Singh, 2013). There are two contrasting views associated with board size and firm performance. One view is that a board with a higher number of directors is effective to boost the performance of the firm. A large board size allows firms to nominate diverse people into the board which increase the effectiveness in the decision-making process (Klein, 2002). The second view is that a large board is not effective to enhance the performance of the firm because it increases the complexity of communication and coordination of activities (Cheng, 2008; Kumar & Singh, 2013).

#### 2.1.2. Board independence

The ability, specialised skill, and knowledge of the independent directors and also their independent attitude of each director might lead to the effectiveness of the board. According to Mishra and Kapil (2018), the ability of evaluation and the monitoring power of the independent directors helps to improve firm performance but Hamdan and Al Mubarak (2017) found that internal managers are more effective and trusted than outside managers. Kohlbeck and Mayhew (2004), Gordon, Henry, and Darius (2004) and Gallery et al. (2008) found that the internal monitoring mechanism, and board independence, constrain the size of R.P.T.s. Gordon, Henry, and Darius (2004) found that the presence of more independent directors on the board is negatively correlated with the size of R.P.T.s.

#### 2.1.3. Number of executive directors on the board

Wang and Oliver (2009) found that the presence of a greater number of executive directors on the board reduces the variability of risks, and the presence of large number of independent directors lead to effective board performance. The executive directors engage in the daily operation of the firm and, therefore they have a major role in R.P.T. decisions. Proper resource allocation is possible if the executive directors do not have any other interests other than firm interests.

#### 2.1.4. C.E.O.-duality

The dual role of C.E.O. reduces the effectiveness of governance system and monitoring mechanism due to the concentration of power inside the company (Fama & Jensen, 1983). A good governance structure and monitoring mechanism help to constrain management's opportunistic behavior and firms with different persons occupying the posts of C.E.O. and chairman are less likely to engage manipulation through R.P.T.s (Lo et al., 2010).

#### 2.1.5. Founder director

The involvement of founders in the board is always important. If the founder directors give preference to their interest than group interest, they may pursue the board to take decisions which are favourable to controlling owners. The empirical evidence of Lo et al. (2010) prove that the presence of higher number of parent directors leads to the opportunistic behaviour of the controlling shareholders. The second view is that founder directors may have a strong intention for a long survival and existence of the firm than other directors.

It is relevant and informative to know the impact of board structure on the relationship between R.P.T.s and firm value. R.P.T.s may negatively affect firm value if the board structure is weak and it may have a positive impact if the board is effective.

## 3. Research methodology

### 3.1. Sample of the study

We have selected all the companies, excluding banking and financial companies, which are listed in the Bombay Stock Exchange (B.S.E.) as on 31 March 2021, and their financial data is available in the Prowess database. There were 3,662 non-financial companies listed on the B.S.E. on the said date, of these 1,632 companies' data are not available in the Prowess data base. The final sample is 2,294 companies comprises of 685 group affiliated firms and 1609 standalone firms. The study covers eight years data from 1 April 2014 to 31 March 2021.

### 3.2. Data collection

The objectives of the study have been achieved using the data of 2,294 firms. The data for empirical analysis have been collected from the Prowess database.

### 3.3. Variables of the study

The following are the interesting and the controlled variables used for empirical analysis.

- Related Party Sales (R.P.S.) – Represents income from the sale of goods to related parties scaled by total assets.

- Related Party Services (R.P.S.S.) – Income from services to related parties scaled by total assets.
- Other revenue receipts from related parties (R.R.P.) – All other revenue receipts such as rent income, interest income … , etc. scaled by total assets.
- Related Party Purchases (R.P.P.) – The amount paid for the purchase of goods and services from related parties scaled by total assets.
- Revenue expenses paid to related parties (R.P.R.E.) –All other types of revenue payments to related parties such as salaries, wages, rent … , etc. scaled by total assets.
- Capital Receipts from Related Parties (C.R.R.P.) – Total amount received from related parties for the sale of assets scaled by total assets.
- Capital Payments to Related Parties (C.P.R.P.) – Total amount paid to related parties for the purchase of capital assets and investments scaled by total assets.
- Related Party Borrowings (R.P.B.) – Loans and deposits received from related parties scaled by total assets.
- Loans and Advances to Related Parties (L.A.R.P) – Total loans and other financial assistance to related parties scaled by total assets.
- R.P.T.s – Sum of different R.P.T.s scaled by total assets.
- Tobin's Q ratio

Tobin's Q is the ratio of the market value to replacement cost. Liew et al. (2015), Bona-Sánchez et al. (2017), Wong et al. (2015), Lin and Liu, (2010) and Nekhili and Cherif (2011) used Tobin's Q ratio to measure firm market value. In India Mishra and Kapil (2018) and Kumar and Singh (2013) used Tobin's Q ratio as a measure firms' market value.

$$\text{Tobin's Q} = \frac{\text{Market Value of Debt} + \text{Market Value of Equity}}{\text{Total Assets}}$$

- Board Size (B.S.) – Total number of directors on the board
- Board Independence (B.I.) – Ratio of independent directors to total directors
- Executive directors (B.E.) – Ratio of executive directors to total directors.
- Promoter Directors (P.D.) – Ratio of promoter directors to total directors
- C.E.O. Duality (Duality) – Coded as 1, if C.E.O. is the chairman of the board.
- Size of the Firm (Size) – log value of the total assets
- Leverage of the firm (Lev) – Ratio of debt to total assets

### 3.4. Econometric models developed for the study

Our data consist of 2,294 firms for eight years and we have 18,352 firm-year data which forms the panel data. We develop three panel regression models and all these models are also applied in the sub-samples business groups and standalone firms.

Model 1

$$Tobin's\ Q\ Ratio = \alpha_0 + \alpha_1 RPTs_{i,t} + \alpha_2 PH_{i,t} + \alpha_3 IH_{i,t} + \alpha_4 Size_{i,t} + \alpha_5 LEV_{i,t} + \varepsilon_{it}$$

Model 2

$$\begin{aligned} Tobin's\ Q\ Ratio = {} & \alpha_0 + \alpha_1 RPS_{i,t} + \alpha_2 RPSS_{i,t} + \alpha_3 RRP_{i,t} + \alpha_4 RPP_{i,t} + \alpha_5 RPRE_{i,t} \\ & + \alpha_6 CRRP_{i,t} + \alpha_7 CPRP + \alpha_8 RPB_{i,t} + \alpha_9 LARP_{\mathrm{i,t}} + \alpha_{10} PH_{i,t} \\ & + \alpha_{11} IH_{i,t} + \alpha_{12} Size_{i,t} + \alpha_{13} LEV_{i,t} + \varepsilon_{it} \end{aligned}$$

The variables proportion of promoters' holdings (P.H.), proportion of institutional holdings (I.H.), Size, and L.E.V. are taken as the controlled variables and the selection of these variables are based on the findings of previous studies including Mishra and Kapil (2018) and Kumar and Singh (2013); the subscript *i* represent firm and *t* represent the year.

Model 3

$$\begin{aligned} QRatio = {} & \alpha_0 + \alpha_1 BS{*}RPT_{i,t} + +\alpha_2 BI{*}RPT_{i,t} + \alpha_3 BE{*}RPT_{i,t} + \alpha_4 PD{*}RPTs_{i,t} \\ & + \alpha_5 Duality{*}RPTs_{i,t} + \alpha_6 BS_{i,t} + \alpha_7 BI_{i,t} + \alpha_8 BE_{i,t} + \alpha_9 PD_{i,t} + \alpha_{10} Duality_{i,t} \\ & + \alpha_{11} PH_{i,t} + \alpha_{12} IH_{i,t} + \alpha_{13} Size_{i,t} + \alpha_{14} LEV_{\mathrm{i,t}} + \varepsilon_{it} \end{aligned}$$

Model 1 is used to study the impact of R.P.T.s on firm value, Model-2 is used to explore the impact of various types of R.P.T.s on firm value and Model 3 is used to study the interaction effect of board structure on the relationship between R.P.T.s and firm value. All these models are also applied in the sub-samples group affiliated firms and standalone firms.

## 4. Empirical findings and discussion

Table 1 presents the descriptive statistics of the value of R.P.T.s scaled by the total assets and the variable used for measuring firms' market value. The average total R.P.T.s in the full sample is 0.1654 with a standard deviation of 0.316, and the average R.P.T.s in business groups is 0.201 with a standard deviation of 0.149. The average Tobin's Q ratio in the full sample is 1.506 which is less than the average of business group. By considering a different types of R.P.T.s Table 1 proves that R.P.S. is large compared with other types of R.P.T.s and the volume of R.P.T.s is higher in business group than standalone firms. C.R.R. is small in all the samples the average C.R.R. is 0.003 in the full sample, 0.005 in business groups and 0.002 in standalone firms. The descriptive statistics of R.P.T.s prove that R.P.T.s in India is material because the average size of R.P.T.s constitute a significant portion of firm total assets and while considering types of R.P.T.s the average of R.P.S., R.P.P. and R.P.R.E. are greater than 0.02 and therefore, these characteristics increases the relevance to study the impact of R.P.T.s on firm value.

**Table 1.** Descriptive statistics of RPTs.

| | Full sample | | | Business groups | | | Standalone firms | | |
|---|---|---|---|---|---|---|---|---|---|
| | Mean | Median | St. Deviation (SD) | Mean | Median | St. Deviation | Mean | Median | St. Deviation |
| RPT | 0.165 | 0.053 | 0.316 | 0.201 | 0.079 | 0.349 | 0.149 | 0.044 | 0.300 |
| RPS | 0.042 | 0.000 | 0.137 | 0.055 | 0.000 | 0.163 | 0.036 | 0.000 | 0.124 |
| RPSS | 0.014 | 0.000 | 0.069 | 0.019 | 0.000 | 0.082 | 0.011 | 0.000 | 0.062 |
| RRP | 0.012 | 0.000 | 0.094 | 0.019 | 0.000 | 0.110 | 0.009 | 0.000 | 0.080 |
| RPP | 0.033 | 0.000 | 0.115 | 0.035 | 0.000 | 0.113 | 0.032 | 0.000 | 0.116 |
| RPRE | 0.024 | 0.010 | 0.055 | 0.025 | 0.019 | 0.053 | 0.023 | 0.009 | 0.056 |
| CRR | 0.003 | 0.000 | 0.027 | 0.005 | 0.000 | 0.035 | 0.002 | 0.000 | 0.023 |
| CPRP | 0.008 | 0.000 | 0.039 | 0.011 | 0.000 | 0.046 | 0.006 | 0.000 | 0.035 |
| RPB | 0.018 | 0.000 | 0.079 | 0.016 | 0.000 | 0.073 | 0.019 | 0.000 | 0.081 |
| LAGV | 0.013 | 0.000 | 0.056 | 0.016 | 0.000 | 0.062 | 0.011 | 0.000 | 0.053 |
| TQ | 1.506 | 0.866 | 1.795 | 1.521 | 0.895 | 1.729 | 1.499 | 0.855 | 1.822 |
| Total no. of observations | | 18,352 | | | 5,480 | | | 12,872 | |

Note: Values in the table are ratio between RPTs and total assets.
Source: Authors' computation.

Table 2 presents the correlation statistics. There are positive and negative correlations between the variables but there is no strong correlation between any of the variables.

### *4.1. R.P.T.s and firm market value*

Table 3 reports empirical evidence of the impact of R.P.T.s on firm value. Panel fixed effect model has been used for estimating regression coefficient and testing the hypotheses. The results reported in Table 3 show that R.P.T.s positively impact firm market value. The coefficients of R.P.T.s are 0.141 in the full sample, 0.232 in business groups and 0.118 in standalone firms; and all the coefficients are statistically significant. This result is identical with Hope and Lu (2019), Wang et al. (2019) and Lo and Wong (2016), who report that R.P.T.s improve firm market value. The positive impact of R.P.T.s on firm market value proves that R.P.T.s reduce the transaction costs including searching cost, information cost and legal cost which increase firm's operational efficiency and improve market value. The positive impact of R.P.T.s on firm value also support the argument that shareholders and other stakeholders perceive that. R.P.T.s are not harmful and it is used to allocate resources between affiliated firms. The values of the controlled variables are in the predicted directions. The value of L.E.V. is positive and significant and firm size is negative and significant and these results are consistent with Mishra and Kapil (2018) and Kumar and Singh (2013). The coefficients of I.H. and P.H. are positive but P.H. is significant only in business group.

The empirical evidence of Model-2 presented in Table 3 shows that the coefficients of R.P.S., R.P.S.S. R.P.P. and L.A.R.P. are positive and significant, which support the argument that R.P.T.s increase firm value. The coefficients of R.R.P. and C.R.R.P. are negative but these are not statistically significant. The coefficients of R.P.R.E. are 1.169 in the full sample, 1.807 in group and 0.946 in standalone firms and all these values are statistically significant. This result indicates that expenses paid for related parties, especially remuneration to the related parties, rent, wages … etc. is not a way of expropriation rather it increases efficiency and value of the firm. The coefficients

**Table 2.** Correlation statistics.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PH (1) | 1.00 | | | | | | | | | | | | | | | | | | |
| IH (2) | −0.09 | 1.00 | | | | | | | | | | | | | | | | | |
| BS (3) | 0.15 | 0.43 | 1.00 | | | | | | | | | | | | | | | | |
| BI (4) | 0.06 | 0.02 | −0.01 | 1.00 | | | | | | | | | | | | | | | |
| BE (5) | −0.01 | −0.08 | −0.10 | −0.20 | 1.00 | | | | | | | | | | | | | | |
| PD (6) | 0.09 | −0.03 | 0.02 | 0.05 | 0.08 | 1.00 | | | | | | | | | | | | | |
| DUALITY (7) | 0.01 | 0.22 | 0.16 | 0.00 | −0.05 | −0.01 | 1.00 | | | | | | | | | | | | |
| RPTS (8) | 0.11 | 0.04 | 0.05 | −0.03 | −0.06 | 0.00 | 0.03 | 1.00 | | | | | | | | | | | |
| RPS (9) | 0.08 | 0.00 | 0.05 | −0.03 | −0.04 | 0.00 | −0.01 | 0.72 | 1.00 | | | | | | | | | | |
| RPSS (10) | 0.03 | 0.11 | 0.06 | 0.02 | −0.06 | −0.01 | 0.10 | 0.25 | −0.04 | 1.00 | | | | | | | | | |
| RRP (11) | 0.04 | 0.01 | 0.04 | −0.01 | −0.05 | 0.00 | 0.01 | 0.62 | 0.50 | 0.03 | 1.00 | | | | | | | | |
| RPP (12) | 0.06 | 0.01 | 0.03 | −0.05 | −0.01 | 0.00 | −0.02 | 0.61 | 0.36 | −0.02 | 0.19 | 1.00 | | | | | | | |
| RPRE (13) | 0.09 | 0.04 | 0.04 | −0.03 | −0.04 | −0.04 | 0.06 | 0.37 | 0.08 | 0.17 | 0.08 | 0.17 | 1.00 | | | | | | |
| CRRP (14) | 0.03 | 0.02 | 0.00 | 0.01 | −0.01 | 0.01 | 0.01 | 0.17 | 0.00 | 0.02 | 0.02 | 0.01 | 0.02 | 1.00 | | | | | |
| CPRP (15) | 0.03 | 0.10 | 0.04 | 0.01 | −0.02 | 0.00 | 0.04 | 0.20 | 0.00 | 0.06 | 0.01 | 0.01 | 0.03 | 0.31 | 1.00 | | | | |
| RPB (16) | 0.04 | −0.07 | −0.07 | −0.02 | −0.01 | 0.01 | −0.03 | 0.30 | 0.00 | 0.00 | 0.01 | 0.02 | 0.10 | 0.07 | 0.02 | 1.00 | | | |
| LARP (17) | 0.02 | 0.05 | 0.00 | 0.02 | −0.02 | 0.03 | 0.02 | 0.26 | 0.00 | 0.05 | 0.05 | 0.03 | 0.03 | 0.08 | 0.12 | 0.08 | 1.00 | | |
| LEV (18) | 0.00 | −0.11 | −0.08 | −0.03 | 0.02 | 0.02 | −0.06 | 0.01 | 0.00 | −0.08 | −0.02 | −0.01 | −0.03 | −0.02 | −0.05 | 0.23 | −0.03 | 1.00 | |
| SIZE (19) | 0.21 | 0.51 | 0.50 | 0.05 | −0.04 | 0.05 | 0.19 | 0.04 | 0.03 | 0.08 | 0.01 | 0.04 | 0.00 | 0.03 | 0.10 | −0.12 | 0.06 | −0.07 | 1.00 |

Source: Authors' computation.

**Table 3.** RPTs and firm market value.

| | Full sample | | Business groups | | Standalone firms | |
|---|---|---|---|---|---|---|
| | Model-1 | Model-2 | Model-1 | Model-2 | Model-1 | Model-2 |
| C | 6.013*** | 5.924*** | 5.960*** | 5.800*** | 5.786*** | 5.713*** |
| | (36.787) | (36.071) | (16.040) | (15.518) | 32.295 | 31.718 |
| RPT | 0.141*** | | 0.232*** | | 0.118*** | |
| | (3.581) | | (3.650) | | (2.405) | |
| RPS | | 0.061 | | 0.095 | | 0.090 |
| | | 0.551 | | 0.547 | | (0.635) |
| RPSS | | 0.265 | | 0.446 | | 0.219 |
| | | 1.231 | | 1.412 | | (0.780) |
| RRP | | −0.220 | | −0.213 | | −0.250 |
| | | −1.743 | | −1.343 | | (−1.367) |
| RPP | | 0.006 | | 0.163 | | −0.019 |
| | | 0.055 | | 0.769 | | (−0.141) |
| RPRE | | 1.169*** | | 1.807*** | | 0.946*** |
| | | (6.357) | | (6.296) | | (4.074) |
| CRRP | | −0.496 | | −0.257 | | −0.646 |
| | | (-1.601) | | (−0.602) | | (−1.535) |
| CPRP | | 0.718*** | | 0.808*** | | 0.658*** |
| | | (3.228) | | (2.660) | | (2.181) |
| RPB | | 0.288*** | | 0.254 | | 0.304*** |
| | | (2.376) | | (1.278) | | (2.018) |
| LARP | | 0.250 | | 0.362 | | 0.224 |
| | | (1.483) | | (1.414) | | (1.036) |
| PH | 0.141 | 0.128 | 0.681*** | 0.662*** | 0.062 | 0.050 |
| | (1.762) | (1.597) | (4.343) | (4.233) | (0.660) | (0.533) |
| IH | 1.073*** | 1.058*** | 1.017*** | 0.962*** | 1.152*** | 1.148*** |
| | (5.416) | (5.346) | (3.699) | (3.505) | (4.321) | (4.308) |
| SIZE | −0.641*** | −0.630*** | −0.585*** | −0.568*** | −0.649*** | −0.639*** |
| | (−30.019) | (−29.378) | (−14.260) | (−13.770) | (−25.802) | (−25.299) |
| LEV | 0.619*** | 0.596*** | 0.561*** | 0.530*** | 0.660*** | 0.640*** |
| | (11.521) | (10.964) | (6.340) | (5.932) | (9.933) | (9.509) |
| No. of observation | 18352 | 18352 | 5480 | 5480 | 12872 | 12872 |
| Industry fixed effect | Yes | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.754 | 0.755 | 0.803 | 0.805 | 0.737 | 0.738 |
| Adjusted R-squared (Adj. $R^{2)}$ | 0.719 | 0.720 | 0.775 | 0.777 | 0.699 | 0.700 |
| F statistic | 21.44*** | 21.46*** | 28.16*** | 28.124*** | 19.517*** | 19.469*** |

Notes: *** significant at the 1% level, ** significant at the 5% level, * significant at the 10% level.
Source: Authors' computation.

of C.P.R.P are 0.718 in the full sample, 0.808 in business groups and 0.658 in standalone firms and all these coefficients are statistically significant. The positive impact of C.P.R.P. on firm value proves that purchase of capital assets from related parties is on arm's length basis more than that it reduces the cost of acquisition of assets and increase firm value and the coefficients of C.P.R.P. show that the relationship is very strong in business group. The coefficient of R.P.B. is 0.288 in the full sample and 0.304 in standalone firms both are statistically significant, but the coefficient is not significant in business group. The positive impact of R.P.B. on firm value prove that R.P.B. helps to fulfil firms financing requirements, reduces the cost of acquisition of finance from related parties and improve firm market value. The results also prove that R.P.B. is not a way used by majority shareholders to divert firm's wealth for their interests. The coefficients of L.A.R.P. are positive but not significant which indicate that loans and advances to related parties do not cause expropriation of the wealth of the firm.

The statistical significance of the controlled variables in model-2 is consistent with model-1. P.H., I.H. and L.E.V. are positively associated with firm value but size has a

negative impact on firm value. P.H. is statistically significant only in the full sample and business groups but I.H. is significant in all the sample sets.

### 4.2. Interaction effect of board structure on the relationship between R.P.T.s and firm market value

Table 4 presents the impact of board structure on the relationship between R.P.T.s and firm value. B.I. has a positive interaction effect on the relationship between R.P.T.s and firm value, the interaction coefficient is 0.285 and statistically significant. The interaction effect of B.I. is very strong in business group than the full sample, the coefficient is 0.627 which is statistically significant at the 5% level. The positive interaction of B.I. prove that independent directors support decisions related to the firms' transactions with its related parties which are efficient than normal business transactions and improve firm's market value. The interaction effect of other variables is not statistically significant but the interaction terms BS*RPT and PD*RPT are negative and the interaction terms BE*RPT and Duality*RPT are positive.

**Table 4.** Interaction effect of board structure on the relationship between RPTs and firm value.

| | Full sample | Business groups | Standalone firm |
|---|---|---|---|
| C | 6.229*** | 6.244*** | 5.979*** |
| | (36.665) | (16.439) | (31.753) |
| BS*RPTs | −0.010 | −0.008 | −0.010 |
| | (−1.063) | (−0.480) | (−0.891) |
| BI*RPTs | 0.284** | 0.627** | 0.125 |
| | (2.019) | (2.483) | (0.732) |
| BE*RPTs | 0.084 | −0.078 | 0.175 |
| | (0.477) | (−0.230) | (0.831) |
| PD*RPTs | −0.032 | −0.341 | 0.136 |
| | (−0.178) | (−1.238) | (0.601) |
| DUALITY*RPTs | 0.270 | 0.160 | 0.315 |
| | (1.834) | (0.665) | (1.732) |
| BS | 0.012** | −0.001 | 0.019** |
| | (1.991) | (−0.148) | (2.526) |
| BI | −0.521*** | −0.486*** | −0.526*** |
| | (−6.728) | (−3.390) | (−5.690) |
| BE | −0.091 | 0.079 | −0.137 |
| | (−0.954) | (0.409) | (−1.235) |
| PD | 0.008 | −0.040 | 0.019 |
| | (0.111) | (−0.289) | (0.212) |
| DUALITY | 0.040 | 0.153** | −0.043 |
| | (0.738) | (1.964) | (−0.620) |
| PH | 0.206** | 0.726*** | 0.120 |
| | (2.532) | (4.572) | (1.254) |
| IH | 1.141*** | 1.072*** | 1.236*** |
| | (5.725) | (3.883) | (4.596) |
| SIZE | −0.649*** | −0.593*** | −0.658*** |
| | (−30.074) | (−14.281) | (−25.886) |
| LEV | 0.628*** | 0.563*** | 0.672*** |
| | (11.674) | (6.354) | (10.105) |
| No. of observation | 18352.000 | 5480.000 | 12872.000 |
| Industry fixed effect | Yes | Yes | Yes |
| R-squared | 0.756 | 0.805 | 0.739 |
| Adj. $R^2$ | 0.721 | 0.776 | 0.701 |
| F statistic | 21.442*** | 27.886*** | 19.494*** |

Source: Authors' computation.

The Durbin Watson statistics prove that there is no problem of autocorrelation in the analysis and there is a good model fit because R-square varies from 0.739 to 0.805 in the sample sets.

We report the interaction of board structure on the relationship between different types of R.P.T.s and firm value in Tables 5 to 7. The results of the empirical analysis using the full sample show that B.S. has a positive interaction on the relationship between C.R.R.P. and firm value, the value of the interaction term is 0.194 which is statistically significant. This result proves that a board with diversified directors are in favour of asset transfer between related parties and it reduces the transaction costs and improves firm market value. The interaction of B.S. on the relationship between R.P.B. and firm value is −0.084 which is statistically significant. It proves that a board with higher number of directors stand against borrowings from related parties due to the chance of expropriation. B.I. has a positive interaction on the relationship between R.P.S.S. and firm value the coefficient of the interaction term is 2.422 in the full sample and 4.861 in business group both are significant at the 1% level, but this relationship is statistically not significant in standalone firms. The positive interaction effect of B.I. shows that independent directors support the decisions regarding services to related parties which increase firm's operating income and market value. The coefficients of the interaction term BI*RPRE is 2.783 in the full sample and 9.062 in business group and both are statistically significant but this interaction effect statistically is not significant in standalone firm. The statistically significant impact of the term BI*RPRE indicates that the independent directors support the decisions for accepting various services from related parties and independent directors consider that R.P.R.E. does not cause expropriation but it improves firm market value by reducing the operational cost. B.I. has a negative interaction effect on the relationship between C.R.R.P. and firm value, the value of the interaction term is −3.376 in the full sample and −3.875 in standalone firms, but this interaction effect is not significant in business group. This negative interaction of B.I. indicates that due to the chance of expropriations independent directors' stand against the decision connected with the sales or transfer of firm's asset to its related parties. When a firm sells its capital assets to related parties' chance for breach of the arm's length principle is very high and therefore independent directors do not support those decisions. The interaction of B.I. is positive on the relationship between R.P.B. and firm value the coefficients are 1.142 in the full sample and 2.474 in business group and both are statistically significant but this interaction effect is not statistically significant, in standalone firms. It indicates that independent directors encourage the firm for accepting loans and advances from its related parties due to the perception that borrowings from affiliates and connected parties reduce the cost of financing. B.E. has a positive interaction on the association between R.P.P. and firm value and the association is very strong in standalone firms, but this relationship statistically does not exist in business group. The coefficients of the interaction term are 1.102 in the full sample and 1.252 in standalone firms and both the values are statistically significant at the 1% level. The positive interaction of B.E. on the association between R.P.P. and firm value indicates that executive directors encourage the board to purchase required raw materials from its related parties. Purchase of raw materials from related parties

**Table 5.** Interaction effect of board characteristics on the relationship between various types of RPTs and firm value (full sample).

| | RPTs= RPS | RPTs= RPSS | RPTs= RRP | RPTs= RPP | RPTs= RPRE | RPTs= CRRP | RPTs= CPRP | RPTs= RPB | RPTs= LARP |
|---|---|---|---|---|---|---|---|---|---|
| C | 6.242*** | 6.234*** | 6.242*** | 6.243*** | 6.144*** | 6.236*** | 6.247*** | 6.245*** | 6.243*** |
| | (36.736) | (36.717) | (36.748) | (36.758) | (36.083) | (36.707) | (36.802) | (36.776) | (36.758) |
| BS*RPTs | −0.025 | −0.068 | 0.020 | −0.023 | 0.018 | 0.194** | −0.015 | −0.084** | −0.021 |
| | (−1.105) | (−1.372) | (0.817) | (−0.838) | (0.353) | (1.963) | (−0.212) | (−2.250) | (−0.392) |
| BI*RPTs | 0.405 | 2.422*** | −0.256 | −0.321 | 2.783*** | −3.376*** | 0.246 | 1.142** | 0.737 |
| | (1.185) | (2.974) | (−0.505) | (−0.803) | (3.761) | (−2.698) | (0.242) | (2.279) | (0.956) |
| BE*RPTs | 0.225 | −1.069 | −1.044 | 1.102** | −1.278* | −0.638 | 1.425 | 1.050* | −1.378 |
| | (0.514) | (−1.157) | (−1.393) | (2.319) | (−1.832) | (−0.322) | (1.163) | (1.684) | (−1.241) |
| PD*RPTs | −0.400 | −2.488*** | 0.843 | 0.455 | −0.287 | 0.227 | −1.316 | 0.372 | 1.961** |
| | (−0.876) | (−2.872) | (1.203) | (0.989) | (−0.323) | (0.161) | (−1.175) | (0.569) | (2.314) |
| DUALITY*RPTs | 0.188 | 0.808** | 0.099 | 0.223 | −0.390 | 0.954 | 2.589*** | −1.008** | −0.023 |
| | (0.531) | (2.040) | (0.187) | (0.502) | (−0.639) | (0.566) | (3.950) | (−1.985) | (−0.044) |
| BS | 0.012** | 0.012** | 0.010* | 0.011* | 0.009 | 0.010* | 0.010* | 0.012** | 0.011* |
| | (1.981) | (1.979) | (1.790) | (1.926) | (1.551) | (1.718) | (1.760) | (2.015) | (1.859) |
| BI | −0.492*** | −0.499*** | −0.473*** | −0.464*** | −0.546*** | −0.462*** | −0.473*** | −0.498*** | −0.483*** |
| | (−6.508) | (−6.691) | (−6.374) | (−6.157) | (−7.163) | (−6.227) | (−6.360) | (−6.653) | (−6.471) |
| BE | −0.085 | −0.058 | −0.066 | −0.111 | −0.062 | −0.072 | −0.088 | −0.099 | −0.062 |
| | (−0.916) | (−0.628) | (−0.721) | (−1.205) | (−0.673) | (−0.793) | (−0.963) | (−1.073) | (−0.681) |
| PD | 0.021 | 0.031 | −0.003 | −0.013 | 0.000 | 0.002 | 0.015 | −0.005 | −0.022 |
| | (0.299) | (0.445) | (−0.043) | (−0.175) | (0.005) | (0.034) | (0.218) | (−0.077) | (−0.311) |
| DUALITY | 0.081* | 0.066 | 0.086* | 0.084* | 0.098** | 0.083* | 0.054 | 0.103** | 0.090* |
| | (1.682) | (1.400) | (1.836) | (1.759) | (1.969) | (1.775) | (1.145) | (2.207) | (1.911) |
| PH | 0.216*** | 0.219*** | 0.217*** | 0.215*** | 0.205** | 0.215*** | 0.216*** | 0.211*** | 0.213*** |
| | (2.666) | (2.702) | (2.675) | (2.648) | (2.525) | (2.650) | (2.668) | (2.594) | (2.619) |
| IH | 1.141*** | 1.141*** | 1.134*** | 1.152*** | 1.130*** | 1.138*** | 1.135*** | 1.133*** | 1.138*** |
| | (5.721) | (5.723) | (5.690) | (5.780) | (5.676) | (5.710) | (5.698) | (5.683) | (5.704) |
| SIZE | −0.651*** | −0.652*** | −0.651*** | −0.652*** | −0.635*** | −0.650*** | −0.652*** | −0.650*** | −0.651*** |
| | (−30.227) | (−30.263) | (−30.241) | (−30.258) | (−29.333) | (−30.190) | (−30.287) | (−30.171) | (−30.244) |
| LEV | 0.631*** | 0.633*** | 0.628*** | 0.630*** | 0.617*** | 0.622*** | 0.632*** | 0.606*** | 0.629*** |
| | (11.719) | (11.767) | (11.684) | (11.718) | (11.486) | (11.571) | (11.758) | (11.154) | (11.705) |
| No. of observation | 18352 | 18352 | 18352 | 18352 | 18352 | 18352 | 18352 | 18352 | 18352 |
| Industry fixed effect | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.756 | 0.756 | 0.756 | 0.756 | 0.756 | 0.756 | 0.756 | 0.756 | 0.756 |
| Adj. $R^2$ | 0.720 | 0.721 | 0.720 | 0.721 | 0.721 | 0.721 | 0.721 | 0.721 | 0.721 |
| F statistic | 21.42*** | 21.45*** | 21*** | 21.34*** | 21.32*** | 21.90*** | 21.31*** | 21.45*** | 21.43*** |

Source: Authors' computation.

**Table 6.** Interaction effect of board characteristics on the relationship between various types of RPTs and firm value (Business Groups).

| | RPTs= RPS | RPTs= RPSS | RPTs= RRP | RPTs= RPP | RPTs= RPRE | RPTs= CRRP | RPTs= CPRP | RPTs= RPB | RPTs= LARP |
|---|---|---|---|---|---|---|---|---|---|
| C | 6.292*** | 6.286*** | 6.313*** | 6.318*** | 6.038*** | 6.311*** | 6.294*** | 6.291*** | 6.326*** |
| | (16.542) | (16.572) | (16.616) | (16.618) | (15.901) | (16.608) | (16.551) | (16.580) | (16.652) |
| BS*RPT | 0.012 | −0.160** | 0.101* | −0.053 | −0.238*** | 0.338** | −0.089 | −0.141** | −0.044 |
| | (0.307) | (−2.327) | (1.684) | (−1.097) | (−2.675) | (2.318) | (−0.981) | (−2.065) | (−0.589) |
| BI*RPT | 0.036 | 4.861*** | −0.924 | 0.896 | 9.062*** | −2.298 | 1.261 | 2.474** | 2.441* |
| | (0.061) | (3.754) | (−0.994) | (1.219) | (5.672) | (−1.125) | (0.820) | (2.481) | (1.888) |
| BE*RPT | 0.212 | −2.554 | −1.637* | 1.214 | −4.742* | −2.973 | 2.807* | 1.294 | −0.845 |
| | (0.230) | (−1.258) | (−1.782) | (0.955) | (−1.926) | (−1.033) | (1.784) | (1.497) | (−0.468) |
| PD*RPT | −0.049 | −2.497* | 0.875 | 0.206 | 0.087 | −0.888 | −0.889 | −0.861 | −2.192 |
| | (−0.070) | (−1.927) | (0.938) | (0.246) | (0.051) | (−0.556) | (−0.594) | (−0.736) | (−1.477) |
| DUALITY*RPT | −0.090 | 0.574 | −0.362 | −0.637 | 1.239 | −1.413 | 1.198 | −1.705** | 0.769 |
| | (−0.146) | (1.170) | (−0.210) | (−0.525) | (1.106) | (−0.701) | (1.361) | (−2.189) | (1.099) |
| BS | −0.004 | 0.002 | −0.004 | −0.001 | 0.002 | −0.004 | −0.002 | −0.001 | −0.002 |
| | (−0.389) | (0.204) | (−0.417) | (−0.108) | (0.249) | (−0.396) | (−0.171) | (−0.137) | (−0.266) |
| BI | −0.375*** | −0.431*** | −0.356*** | −0.400*** | −0.563*** | −0.359*** | −0.376*** | −0.408*** | −0.403*** |
| | (−2.711) | (−3.167) | (−2.623) | (−2.909) | (−4.049) | (−2.650) | (−2.762) | (−2.985) | (−2.954) |
| BE | 0.045 | 0.092 | 0.083 | 0.021 | 0.141 | 0.066 | −0.013 | 0.005 | 0.086 |
| | (0.242) | (0.514) | (0.463) | (0.114) | (0.759) | (0.368) | (−0.071) | (0.027) | (0.477) |
| PD | −0.103 | −0.060 | −0.113 | −0.120 | −0.125 | −0.094 | −0.079 | −0.095 | −0.077 |
| | (−0.797) | (−0.474) | (−0.905) | (−0.920) | (−0.975) | (−0.749) | (−0.630) | (−0.757) | (−0.606) |
| DUALITY | 0.185*** | 0.166** | 0.183*** | 0.198*** | 0.135* | 0.188*** | 0.168** | 0.211*** | 0.169** |
| | (2.736) | (2.490) | (2.691) | (2.882) | (1.868) | (2.854) | (2.553) | (3.221) | (2.557) |
| PH | 0.744*** | 0.747*** | 0.741*** | 0.725*** | 0.693*** | 0.737*** | 0.751*** | 0.744*** | 0.727*** |
| | (4.671) | (4.703) | (4.666) | (4.552) | (4.378) | (4.637) | (4.706) | (4.683) | (4.565) |
| IH | 1.077*** | 1.023*** | 1.059*** | 1.071*** | 1.012*** | 1.070*** | 1.085*** | 1.087*** | 1.056*** |
| | (3.893) | (3.701) | (3.829) | (3.872) | (3.677) | (3.872) | (3.925) | (3.934) | (3.816) |
| SIZE | −0.599*** | −0.602*** | −0.602*** | −0.602*** | −0.566*** | −0.602*** | −0.601*** | −0.597*** | −0.602*** |
| | (−14.411) | (−14.529) | (−14.507) | (−14.482) | (−13.603) | (−14.490) | (−14.472) | (−14.406) | (−14.514) |
| LEV | 0.565*** | 0.574*** | 0.567*** | 0.577*** | 0.543*** | 0.560*** | 0.573*** | 0.534*** | 0.562*** |
| | (6.369) | (6.487) | (6.404) | (6.505) | (6.167) | (6.320) | (6.461) | (5.973) | (6.343) |
| No. of observation | 5480 | 5480 | 5480 | 5480 | 5480 | 5480 | 5480 | 5480 | 5480 |
| Industry fixed effect | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.804 | 0.805 | 0.804 | 0.804 | 0.806 | 0.804 | 0.804 | 0.805 | 0.804 |
| Adj. $R^2$ | 0.775 | 0.776 | 0.775 | 0.775 | 0.778 | 0.775 | 0.776 | 0.776 | 0.775 |
| F statistic | 27.783*** | 27.901*** | 27.811*** | 27.812*** | 28.210*** | 27.821*** | 27.845*** | 27.877*** | 27.828*** |

Source: Authors' computation.

**Table 7.** Interaction effect of board characteristics on the relationship between various types of RPTs and firm value (Standalone Firms).

| | RPTs= RPS | RPTs= RPSS | RPTs= RRP | RPTs= RPP | RPTs= RPRE | RPTs= CRRP | RPTs= CPRP | RPTs= RPB | RPTs= LARP |
|---|---|---|---|---|---|---|---|---|---|
| C | 5.985*** | 5.979*** | 5.980*** | 5.984*** | 5.911*** | 5.973*** | 5.989*** | 5.991*** | 5.979*** |
| | (31.780) | (31.767) | (31.762) | (31.787) | (31.322) | (31.706) | (31.835) | (31.816) | (31.771) |
| BS*RPT | −0.039 | 0.002 | 0.010 | −0.015 | 0.108 | 0.144 | 0.072 | −0.084* | −0.018 |
| | (−1.360) | (0.036) | (0.333) | (−0.425) | (1.573) | (1.077) | (0.728) | (-1.826) | (−0.236) |
| BI*RPT | 0.570 | 1.087 | −0.405 | −0.768 | 1.390 | −3.875** | −0.880 | 0.837 | 0.235 |
| | (1.364) | (1.039) | (−0.584) | (−1.569) | (1.613) | (−2.425) | (−0.664) | (1.411) | (0.244) |
| BE*RPT | 0.270 | −0.917 | −0.823 | 1.252*** | −1.141 | −0.756 | 0.548 | 1.291 | −0.793 |
| | (0.523) | (−0.849) | (−0.731) | (2.296) | (−1.461) | (−0.277) | (0.307) | (1.509) | (−0.558) |
| PD*RPT | −0.676 | −1.827 | 1.440 | 0.648 | −0.420 | 1.619 | −1.542 | 0.625 | 3.432*** |
| | (−1.141) | (−1.582) | (1.379) | (1.132) | (−0.400) | (0.684) | (−0.975) | (0.771) | (3.214) |
| DUALITY*RPT | 0.365 | 1.025* | 0.200 | 0.443 | −0.962 | 2.050 | 3.432*** | −0.819 | −0.612 |
| | (0.851) | (1.746) | (0.343) | (0.885) | (−1.305) | (0.781) | (3.810) | (−1.229) | (−0.843) |
| BS | 0.020*** | 0.018** | 0.018** | 0.019** | 0.015* | 0.018** | 0.017** | 0.019*** | 0.018** |
| | (2.608) | (2.340) | (2.411) | (2.464) | (1.958) | (2.383) | (2.222) | (2.587) | (2.419) |
| BI | −0.527*** | −0.516*** | −0.504*** | −0.479*** | −0.547*** | −0.496*** | −0.497*** | −0.526*** | −0.507*** |
| | (−5.845) | (−5.800) | (−5.676) | (−5.328) | (−6.012) | (−5.595) | (−5.598) | (−5.882) | (−5.683) |
| BE | −0.121 | −0.096 | −0.104 | −0.148 | −0.100 | −0.109 | −0.112 | −0.134 | −0.106 |
| | (−1.118) | (−0.892) | (−0.972) | (−1.364) | (−0.920) | (−1.020) | (−1.047) | (−1.241) | (−0.987) |
| PD | 0.063 | 0.054 | 0.027 | 0.018 | 0.039 | 0.033 | 0.048 | 0.023 | 0.000 |
| | (0.732) | (0.648) | (0.327) | (0.216) | (0.456) | (0.400) | (0.577) | (0.272) | (−0.004) |
| DUALITY | −0.002 | −0.010 | 0.010 | 0.001 | 0.037 | 0.005 | −0.033 | 0.023 | 0.022 |
| | (−0.025) | (−0.163) | (0.154) | (0.021) | (0.561) | (0.085) | (−0.522) | (0.361) | (0.356) |
| PH | 0.130 | 0.132 | 0.130 | 0.131 | 0.122 | 0.129 | 0.134 | 0.122 | 0.128 |
| | (1.357) | (1.383) | (1.359) | (1.370) | (1.272) | (1.352) | (1.402) | (1.277) | (1.335) |
| IH | 1.229*** | 1.246*** | 1.226*** | 1.256*** | 1.244*** | 1.231*** | 1.212*** | 1.212*** | 1.228*** |
| | (4.568) | (4.630) | (4.558) | (4.666) | (4.624) | (4.576) | (4.506) | (4.507) | (4.556) |
| SIZE | −0.660*** | −0.659*** | −0.659*** | −0.660*** | −0.646*** | −0.658*** | −0.660*** | −0.659*** | −0.659*** |
| | (−25.972) | (−25.976) | (−25.960) | (−26.023) | (−25.338) | (−25.898) | (−26.025) | (−25.926) | (−25.962) |
| LEV | 0.676*** | 0.675*** | 0.672*** | 0.674*** | 0.667*** | 0.666*** | 0.680*** | 0.652*** | 0.674*** |
| | (10.149) | (10.143) | (10.097) | (10.126) | (10.036) | (10.014) | (10.228) | (9.700) | (10.133) |
| No. of observation | 12,872 | 12,872 | 12,872 | 12,872 | 12,872 | 12,872 | 12,872 | 12,872 | 12,872 |
| Industry fixed effect | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R-squared | 0.739 | 0.739 | 0.739 | 0.739 | 0.739 | 0.739 | 0.739 | 0.739 | 0.739 |
| Adj. $R^2$ | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 | 0.701 |
| F statistic | 19.487*** | 19.498*** | 19.485*** | 19.498*** | 19.533*** | 19.501*** | 19.524*** | 19.502*** | 19.505*** |

Source: Authors' computation.

reduces costs including searching cost, legal cost, information costs … etc. R.P.S.S. is one of the sources of operating revenue from related parties and P.D. has a negative interaction on the association between R.P.S.S. and firm value, the coefficient of the interaction term is −2.488 which is statistically significant at the 1% level. The negative interaction effect of P.D. indicates that promoter directors use R.P.S.S. as tool to increase their personal wealth which negatively affects the firm market value. P.D. has a positive interaction effect on the association between L.A.R.P. and firm value and the relationship is very strong in standalone firms, but this relationship statistically does not exist in business groups. The coefficients are 1.961 in the full sample and 3.432 in standalone firms both are statistically significant at the 1% level. The positive interaction of P.D. on the association between L.A.R.P. and firm value indicates that promoter directors encourage loans and advances between related parties and these loans and advances do not cause the expropriation rather it increase the value of the firm. Duality has a positive interaction on the relationship between R.P.S.S. and firm value the interaction term is 0.808 which is statistically significant. This result proves that when C.E.O. is the chairman of the board, he can understand that providing services to related parties increase firm revenue and market value and he uses his position to influence other directors to give approval of R.P.S.S. Duality has a positive interaction on the association between C.P.R.P. and firm value the coefficients are 2.589 in the full sample and 3.432 in the standalone firm but this relationship is not statistically significant in business group. The empirical evidence proves that if C.E.O. is in dual position, he encourages acquiring capital assets from related parties which will reduce the cost of asset acquisition and improve firm value. Duality has a negative interaction effect on the association between R.P.B. and firm value, the coefficients are −1.008 in the full sample and −1.705 in business group and both are statistically significant. The negative interaction effect of duality shows that if chairman is the executive director, he does not agree with accepting borrowings from related parties due to the chance of expropriation which ultimately causes a negative impact on firm value.

The board characteristics have a significant impact on firm value. B.S. has a positive impact on firm value but B.I. has a negative impact on firm value, this result supports the findings of Hamdan and Al Mubarak (2017) that internal managers are effective and trusted than outside managers. The coefficients of B.E. are not significant in the full sample and the sub samples. Our results do not show any empirical evidence on the association between P.D. and firm value, none of the coefficients are significant in the samples. There is a positive association between Duality and firm value in business group, but this association is not statistically significant in the full sample and standalone firm. The positive impact of Duality on firm value in business group prove that the dual position of chairman increases the efficiency of decision making process and improve firm value. In the full sample and the business groups, P.H. and I.H. have a positive influence on firm value; but in standalone firms, only I.H. has an impact on firm value. The relationship between the controlled variables and firm values are almost in the predicted directions. The positive impact of P.H. on firm value proves that higher control right of the controlling owners increases the efficiency and market value. The positive impact of I.H. prove that increase in the

shareholdings of institutional shareholders increases the efficiency of the firm because the institutional holders can use their professional expertise abilities improve the value of the firm. The impacts of the controlled variables on firm value are consistent with the findings of Mishra and Kapil (2018) and Kumar and Singh (2013).

The goodness of the fit of the regression is 0.756 in the full sample, and it varies from 0.805 to 0.806 in business groups and, R-squared value is 0.701 in standalone firms. The F-statistics varies from 21.31to 21.445 in the full sample, from 27.783 to 28.210 in business groups and from 19.487 to 19.533 in standalone firms, which show the model fit. There is no problem of autocorrelation and multicollinearity in the regression analysis, and we use the method of fixed effect for the estimation of the coefficients …

## 5. Conclusion

This study examined the impact of R.P.T.s on firm value and the interaction effect of governance mechanism on the relationship between R.P.T.s and firm value. This study is different with the previous studies in two different ways. First, this is the first study in Indian context which has analysed the R.P.T.s and firm value by examining the role of governance. Agnihotri and Bhattacharya (2019) and Alhadab et al. (2020) find that the impact of R.P.T.s vary across countries with different institutional settings, and regulatory environment therefore the findings of the study is informative to various stakeholders, because they can analyse and evaluate the impact of R.P.T.s in Indian context. Second, this is the first study that has examined the interaction effect of board characteristics on the relationship between various types of R.P.T.s and firm value. The empirical results of the study support the transaction efficiency hypothesis that R.P.T.s reduce the transaction cost and facilitate resource allocation between affiliated firms. Based on the empirical findings of our study we accepted the research hypothesis that R.P.T.s increase firm value. The results of the study are consistent with the findings of Hope and Lu (2019), Wang et al. (2020), Wo et al. (2015) and Lo and Wong (2016). The empirical evidence of the study is contradictory with the findings of many studies including Kohlbeck and Mayhew (2010), Nekhili and Cherif (2011), Bona-Sánchez et al. (2017), Habib et al. (2017b) and Supatmi et al. (2021). The empirical findings support the findings Wang et al. (2019) that R.P.T.s of firms which have more group affiliated firms are more likely driven by transaction cost concern rather than expropriation because the relationship between R.P.T.s and firm value is very strong in business group. The results confirm the findings of Jia et al. (2013) that business groups tend to transfer resources to poorly performing firms through R.P.Ts. The second objective of the study is to examine the impact of the interaction effect of governance mechanism on the relationship between R.P.T.s and firm value. B.I. has a positive interaction effect on the relationship between R.P.T.s and firm value and this result is consistent with the findings of Chien and Hsu (2010); the interaction effects of other board characteristics are based on the type of R.P.T.s. These findings prove that directors give special attention while forming policies and decisions connected with R.P.T.s because the interaction effects of different characteristics of board vary between the types of R.P.T.s. The nature of

different types of directors is different; executive directors are the directors within the firm but independent directors are from outside of the firm and promoter directors may or may not be an active director. Hamdan and Al Mubarak (2017) finds that internal managers, especially executive directors, are more effective and trusted than outside managers, because of their knowledge and understanding about the business and working of the firm. Outside directors, especially independent directors, are effective because they have diversified knowledge and their primary responsibility is to protect the interests of minority shareholders. Lo et al. (2010) prove that founder directors prefer their personal interest than firm interest, but founder directors have a strong intention for the existence and survival of the firm. The nature, responsibilities, and interests of different types of directors are the reasons for the variability of the interaction effect of different board characteristics on the relationship between various types of R.P.T.s and firm value.

This study provides important insights to various stakeholders and makes significant contribution to the literature. The positive impact of R.P.T.s on firm value indicates that R.P.T.s in Indian companies do not cause expropriation of the interests of minority shareholders and they are likely to increase the wealth of shareholders by improving the transaction efficiency. The empirical findings of the study also contribute some new evidence to the literature that the governance, especially the board structure, has a significant impact on R.P.T. decisions. There are limitations in this study. First the type of industry to which the selected firms belong to has not been considered in this study, there is a chance to have a minor variation in the results of the study between various industries. Second, financial companies have been ignored due to the difference in the form of financial reporting and the variations in regulatory requirements between financial companies and non-financial companies; therefore, a separate analysis is required for financial companies. Third, due to non-availability of data some of the companies listed in BSE have not been considered in this study. Non-availability of the data is due to companies not preparing and reporting their financial statements as per the regulatory norms. Overall, our findings have made significant contribution to the empirical literature on R.P.Ts.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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