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Ownership Concentration and the Value Effect of Related Party Transactions (RPTs)*

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This paper[1] investigates 218 related party transactions (RPTs) in Israel, an economy characterized by a high percentage of closely-held firms and identifies a non-linear inverted U connection between the value effect of RPT and the level of firm ownership concentration. This non-linear connection is similar to the worldwide documented quadratic (inverted U) relation between ownership concentration and a firm's Tobin's Q. The relation becomes even statistically stronger, when measuring ownership concentration using a strategic power approach, in an attempt to identify the source of this puzzling connection.

Keywords: related party transaction (RPT), ownership concentration, private benefits

Introduction

Related party transaction (RPT) is the common term for deals between a company and one (or more) of its controlling entities (i.e., major shareholders and/or management) or alternatively, a transaction in which one (or more) of a firm's controlling entities possesses private interests.

In principle, RPT can be associated with two opposite consequences. On the one hand, RPT can serve as a value-enhancing effect through lower transaction costs, efficiency, and ease of enforcing property rights and imperfect contracts (Coase, 1937; Khanna & Palepu, 1997; Shin & Park, 1999; Fan & Goyal, 2006; Wong & Jian, 2003). The literature refers to this kind of RPT as "propping". On the other hand, however, RPT may also be used as a mechanism to exploit firm resources and divert funds from the company to controllers' other firms or even their private pockets. The terminology for this kind of RPT is "tunneling".

Tunneling occurs in various forms, for instance, when a firm overpays (or has been underpaid) for merchandise or services or gets (provides) loans which bear above (under) market interests (Djankov, La Porta, Lopez-de-Silanes, & Shleifer, 2008). Consequently, RPT is a potential form of private benefits of control, which accrues for some firms' controllers and insiders, but not for small and public shareholders (Barclay & Holderness, 1989; Dyck & Zingales, 2004; Albuquerque & Schroth, 2010; Liu & Magnan, 2010; Barak & Lauterbach, 2011).

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[1] JEL classification: G32; G34; G38.

According to Dyck and Zingales (2004) and La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000; 2002), the magnitude of private benefits of control is negatively correlated with ownership concentration. Therefore, it is reasonable to assume some kinds of relation between the nature of RPT and a firm's ownership structure. In other words, the effect of RPT on firm value, which can serve as a proxy for the intensity of private benefit consumption, should be correlated with firm market value and can be used as a potential explanation to the relation between ownership characteristics and firm performance.

In this study, the authors explore the relation between the value effect of RPT and firm ownership concentration in Israel, an economy characterized by closely-held firms and under median corporate governance quality indicators (La Porta et al., 2000; Dyck & Zingales, 2004). The authors find that this relation is similar to the documented non-linear quadratic (inverted U) relation between ownership concentration and Israeli firms' Tobin's Q presented by Lauterbach and Tolkowsky (2007). This relation is persistent and even statistically stronger, when using more sophisticated strategic-oriented measures of ownership concentration.

The findings of this paper suggest that ownership concentration is a good indicator of the perceived intention behind RPTs and their effects on firm value. The results support the assumption that small shareholders' considerations (as reflected in the market reaction to the deal) incorporate the incentive of controlling shareholders to preserve or expropriate firm resources, as well as their freedom of action level in doing so.

This paper is organized as follows. Section 2 presents the literature review. Section 3 includes the theory and hypotheses, while Section 4 discusses the methodology. Section 5 describes the sample and data used in this paper, while Section 6 is dedicated to the empirical findings and analysis. Section 7 offers conclusions and a brief summary.

Literature Review

The ambiguous nature of RPTs has made it a central issue of several prior studies. Weinstein and Yafeh (1995) revealed that Japanese firms inside business groups, which comprised large banks, tended to pay higher interest rates than other non-affiliated companies. However, Jiang, Lee, and Yue (2010) reported lower interest rates as regards loans provided by Chinese companies to insiders.

Bertrand, Mehta, and Mullainathan (2002) found evidence of tunneling through RPT among pyramidal ownership structures. It appears that controlling shareholders use RPT to divert resources from low cash flow rights to higher ones in the pyramid.

Wong and Jian (2003) described 131 RPTs in China and found them to be significantly common within business groups before public offerings or when a firm faced possible delisting, due to insufficient price levels. They perceive RPTs as a management earning tool serving controllers' interests.

Cheung, Rau, and Stouraitis (2004) supported the tunneling view by presenting a significant and negative relation between a market's reaction to Chinese firms' RPTs and the percentage of holdings of controlling shareholders, as well as the level of a firm's information disclosure. The tunneling view of RPT within Chinese firms is also supported by Aharony, Wang, and Yuan (2005) who report abnormal stock returns of post-IPO[2] to be significantly and negatively correlated with the extent of RPT with the parent company.

[2] Initial public offering.

The tunneling nature of RPTs also manifests itself in Liu and Magnan's (2011) findings which show a higher market value in firms from countries with stricter self-dealing[3] regulations, such as mandatory disclosure and shareholder approval.

Despite the above proofs, many papers fail to support the tunneling RPT view inside business groups. Khanna and Palepu (2000), for instance, found that group-affiliated firms outperformed non-affiliated ones, while Buysschaert, Deloof, and Jegers (2004) failed to find significant evidence of minority shareholders' expropriation in Belgian business groups.

Gordon and Henry (2005) examined 331 US publicly-traded firms during the years of 2000 and 2001 and found RPT to be associated with earning management through financial transactions, such as loans from and to related parties. Another non-arms' length phenomenon related to companies' loans to insiders in American firms is also reported by Kahle and Shastri (2004). Gordon, Henry, and Palia (2004), in another pre-Sarbanes-Oxley era study, found RPT intensity among US firms to be positively related to weaker corporate governance and negatively related to industry-adjusted returns.

Chief executive officers' (CEOs) compensation schemes may also be treated as a special case of RPTs, as minority shareholders' expropriation (tunneling) can also be made through unjustified compensations to owners' staffed positions. Bertrand and Mullainathan (2000), Amzeleg and Mehrez (2004), as well as Cohen and Lauterbach (2008) documented significantly higher compensation packages for CEOs who were also controlling shareholders.

Barak, Cohen, and Lauterbach (2011) found a positive relation between the intensity of RPTs (which are not part of the CEO's compensation scheme) and the level of excess owner-CEOs' salaries in Israeli family firms. The portion of excess compensation is negatively correlated with the firm's Tobin's Q, suggesting that it is probably a form of private benefits of control. Therefore, excessive compensation to owners' functionaries (similarly to other forms of RPT) most likely serves as a tunneling vehicle.

Thus, it is reasonable to assume that the intensity and nature of RPTs will be reflected in firm value. One can also expect a strong link to exist among ownership structure characteristics which naturally reflect the ability of insiders to propose and pass these special transactions in a company's legal quorums.

The relation between ownership structure and firm value is a major issue for academics and practitioners alike, with a tangent interest in corporate governance aspects. Morck, Shleifer, and Vishny (1988) were the first to document a non-monotonic relation between the percentage of holdings of major shareholders and a firm's Tobin's Q. According to their findings, Q tends to increase with the percentages of holdings in the range of 0% to 5%, decrease in the (holdings) range of 5% to 25%, and increase again from this level of holdings on. It seems that the agency problem, which emerges from the separation of ownership and management, is moderate when ownership concentration increases up to 5%. From 5% and up to 25%, a firm's control group accumulates excessive control power and exploits corporation resources. Beyond 25%, dominant shareholders possess a large fraction of the firm, thus reducing their incentives to sabotage its market value (Jensen, 1986).

In contrast, McConnell and Servaes (1990) reported a quadratic (inverted U) relation. It appears that Q tends to increase with ownership concentration until major shareholders' holdings reach 40%-50% of firm equity. From this point onwards, Q tends to monotonically decrease. The quadratic inverted U relation between a firm's Tobin's Q and ownership concentration persists in later studies of US companies as well as firms in

[3] Another term for RPTs.

more ownership-concentrated European economies, such as Norway and Sweden (Bohren & Odegaard, 2004; Beiner, Schmid, Drobetz, & Zimmermann, 2005).

Lauterbach and Tolkowski (2007) reported a similar relation in Israel, a highly concentrated ownership economy with many closely-held firms. According to their findings, Q values increase with controlling shareholders' voting power, which peaks at about 68% and then decreases monotonically. The described quadratic relation has become one of the more puzzling relations in the financial literature, as will be explained in next section.

A contrasting view was provided by Demsetz and Lehn (1985), who raised the possibility that ownership concentration was endogenous. According to their theory, there is actually no connection between Q and owners' holdings. Instead, major shareholders tend to choose firms according to their preferred given typical Q. Because the value of a chosen Q is a utility-maximizing one, the authors should not expect any motivation to influence or change it. Although the theory fails to explain the deterioration of Q at high holding levels and is only weakly and insufficiently supported by the empirical literature in general, it still receives attention and is constantly examined in most of the studies, once again, usually without significant results.

Theory and Hypotheses Development

RPT may be subjected to two mutually exclusive contradictory interpretations, namely, tunneling and propping. The tunneling view refers to RPT as a form of private benefits of control, namely a means by which to transfer funds from a firm's resources to the hands of controlling shareholders (or management) at the expense of other firms' stakeholders. The propping view, however, treats RPT as a value-enhancing mechanism designed to reduce transaction costs and improve efficiency[4].

Therefore, the nature of RPT should reflect the firm controllers' incentives to exploit or alternatively promote and preserve the firm's assets. Jensen and Meckling (1976) as well as Jensen (1986) (and others) showed that a significant component of these incentives was derived from the level of insiders' holdings in the firm's equity and its impact on their cash flow rights and voting power.

According to the above descriptions, the motivation to loot a firm's funds decreases as holding levels rise, and the vice versa. The explanation is quite intuitive. The larger the equity fraction owned by insiders, the larger the cash flow rights and the greater the firm controllers' motivation to protect and preserve it. However, as holding percentages increase, voting power increases as well. Thus, major shareholders become strategically powerful and more competent as regards crossing barriers and, in turn, lower their exploitation costs.

The net force of these contradictory effects for each level of ownership concentration should determine the final shape of the relation. The authors expect the holding incentive effect to be more dominant for lower levels[5], meaning that RPT value effect starts as an increasing function of the holding percentage. Yet, it is hard to determine which effect takes over and becomes dominant, when holding levels significantly grow. If incentive effect of holdings prevails, the authors expect the RPT value effect to increase monotonically. However, if the excessive strategic power effect is overcome, a non-monotonic (similarly quadratic) relation should emerge, as the RPT value's increasing trend eventually inverts into a decreasing one.

[4] See Friedman, Johnson, and Mitton (2003) for anecdotal evidence of RPT as propping.

[5] This assumption is consistent with Jensen's incentive effect as well as the model presented in the study of La Porta et al. (2002) which predicts a negative relation between insiders' holding levels and managerial inefficiencies.

Previously related literature gives the authors a clue regarding the nature of the described intriguing relation. If RPT value effect is a good proxy for the value consequences of a firm owner's actions (i.e., the magnitude of private benefits of control as well as the intensity of value-enhancing procedures), the authors expect the relation to be similar to the well-documented relation between ownership concentration and firm value (i.e., Tobin's Q). Most of the studies report a quadratic inverted U relation, implying that the strategic excessive power effect eventually (i.e., when holding levels are high enough) overcomes the incentive effect of holdings[6].

Reproducing the documented relation concerning ownership concentration and RPT value effect will be far stronger than any other support for the puzzling Q-ownership relation. In fact, it will generate (for the first time, to the best of the authors' knowledge) a direct and empirically-based explanation for (at least one of) its foundations. In addition, because the relation that the authors investigate uses a measure of the value consequences of owners' actions, it will seriously weaken the possibility of a spurious Q-ownership relation, due to the endogeneity of ownership level as proposed by Demsetz and Lehn (1985) and others[7].

Thus, the authors put forward the following hypothesis:

H1: The relation between the RPT value effect and ownership concentration is a non-monotonic and quadratic inverted U, which is similar to the documented relation between Tobin's Q and controlling shareholders' ownership level.

Lauterbach and Tolkowski (2007) estimated the Q-ownership relation in Israel and received the typical and quadratic inverted U relation. However, their findings deserve a thorough examination, as the ownership structure in Israel is concentrated (like many other worldwide economies outside the USA and the Britain). The vast majority of Israeli publicly-traded firms are closely held, and most of them are dominated by an absolute majority of control holders. Moreover, many of the Israeli companies' control groups are homogenous and comprise only one member or family (i.e., family firms).

In this environment, which La Porta et al. (2002) ranked as an under-median corporate governance economy, the incentive effect of holdings is somewhat saturated, and considerable attention should be dedicated to the excessive strategic power drive.

Family firms are mostly exposed to the surplus effect of strategic power, as their controllers are likely to be more cohesive and cooperative in exercising RPTs. There is ample evidence showing that family ownership decreases both firm performance and firm value, apparently because private benefits tend to be on a larger scale (Volpin, 2002; Bennedsen, Nielse, Perez-Gonzalez, & Wolfenzon, 2007; Barak & Lauterbach, 2007). Therefore, the authors give special attention to these firms and hypothesize that RPT within family firms is more likely to represent a sub-optimal value event.

Thus, the authors put forward the following hypothesis:

H2: The RPT value effect tends to be lower for family firms, i.e., firms with a homogenous control group comprising only one entity.

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[6] Interesting and surprising are Ding, H. Zhang, and J. Zhang's (2007) findings showing an inverted U-shape relation between ownership concentration and the extent of earning management practice in Chinese companies. Interpreting their results, they argue that the first dominant effect is the strategic power effect (entrenchment), which gradually gives way to the growing impact of the incentive effect (alignment). This interpretation is contrary to the prevailing notion, as its projection on firm value should be expressed in a straight U relation, rather than the common inverted one.

[7] See the end of the Literature Review (Section 2) for details.

It is natural that larger firms usually receive higher levels of public attention and therefore higher media coverage intensity. Consequently, larger firms are better monitored and less subjected to value-destroying moves and private benefits of control[8]. Thus, the authors expect RPT in larger firms to be less damaging and more value-enhancing.

Thus, the authors put forward the following hypotheses:

H3: The RPT value effect tends to be higher in larger firms.

Firm leverage is also a factor that has a potential influence on RPT consequences. Debtors (especially banks) are more likely to be cautious and watchfully monitor high-levered firms. Therefore, one should expect a positive relation between the RPT value effect and a firm's financial leverage.

H4: There is a positive relation between the RPT value effect and a firm's financial leverage.

External or independent[9] directors are another monitoring device which should moderate tunneling acts, such as value-damaging RPTs. Chhaochharia and Grinstein (2006) showed that a higher proportion of external directors within the directorate mitigated CEO agency problems in the US. However, the impact of independent directors on closely-held firms, where the majority of directors belong to the control group, may be much less effective.

A firm's periodical profitability may influence the nature of RPT in two different ways. On the one hand, it could be a signal of proper insider conduct. However, on the other hand, it can also serve as a screening device in the hands of control holders to promote tunneling RPTs. The same rationality and reasoning can be applied towards dividend declaration. Dividends may not only be an indicator of stability and confidence in future earnings, but can also serve to camouflage improper RPTs.

Thus, the authors tend not to be decisive and do not hypothesize the character impact of external directors, firm profitability, and dividend policy on RPT value consequences. Instead, the authors prefer to leave the matter open to empirical examinations.

Methodology

In order to capture the RPT value effect, the authors use the standard event study methodology. Cumulative abnormal returns (CARs) will be calculated using the market model in a 10-day event window around the RPT announcement date, i.e., five days prior to and five days after the announcement. The model's parameters will be estimated 200 days prior to the event window.

The authors are interested in investigating a broad span of RPT, including any fiscal[10] and financial transactions. In this methodological framework, controlling shareholders' salaries, bonuses, and benefits (such as restructuring of options) are treated as a special case of financial RPT.

The basic measure for ownership concentration in this paper is the percentage of the firm's shares held by insiders, including large shareholders, executives, and directors. Nevertheless, the closely-held nature of Israeli publicly-traded firms requires special attention, when measuring the impact of ownership structure. According to the above theory, a higher ownership level moderates the incentive effect of holdings by amplifying the consequences of excessive strategic power. Thus, in a concentrated ownership environment, a particular

[8] Indeed, Barclay and Holderness (1989) as well as Barak and Lauterbach's (2007) documented lower levels of private benefits of control in larger firms.

[9] A director without any family (or business) ties with controlling shareholders (or management).

[10] Buying (selling) a real asset or service from (to) a related party.

thought should be dedicated to strategic aspects. For this reason, the authors control homogenous control groups (i.e., family firms) when estimating the impact of ownership holdings over the RPT value effect.

However, the authors also aim towards a more multi-dimensional and strategically-oriented index which will more precisely reflect the degree of ownership concentration and eliminate the need to control controllers' homogeneity. A suitable measure for this purpose was presented by Milnor and Shapley (1978) and has been commonly used ever since in the financial literature[11]. In this study, the authors use the "oceanic" voting power of small shareholders (the public) as an ownership concentration measure. High values indicate lower concentrations and the vice versa.

Sample and Data

Section 270 of Israeli corporate law from 1999 obligates publicly-traded firms to issue an immediate report of every transaction with a related party. Such transactions must also be approved by both the board of directors and shareholders, with a special majority rule needed of at least one third of all outside shareholders.

The sample includes all the reports from over a two-year period starting from December 2001, with respect to the change in corporate regulation from 1999 and an adjustment period. The transaction reports contain the following information: the exact date of each transaction, the parties involved, the essence of their relations, and a detailed description of the transaction. Further data on a firm's ownership structure, accounting variables, and capital structure come from a firm's annual reports as well as the "Taklit-Hon" database (a private vendor). Data on the stock prices of every public firm come from the "Predicta" (a commercial data base).

Defining the first announcement of the transaction as Day "0" for each security, the authors obtain a maximum of 211 daily return observations starting on Day -205 and ending on Day +5. The first 200 days in the period (Day -205 through Day -6) are used for estimating the security parameters of the market model. The following 11 days (Day -5 through Day +5) are considered as the event period. For a security to be included in the sample, it must have at least 100 daily returns in the first (estimation) period and no missing data during the event period[12]. Following this strict requirement, the authors obtain full trading data on 218 transactions from 129 different firms.

Empirical Results

Descriptive Statistics

Table 1 provides some descriptive statistics of the variables and compares family and non-family-owned companies that reported an RPT during the sample period, over a wide range of variables. The sample consists

[11] The Milnor-Shapley's oceanic power index measures the power of a player in a voting game as the probability of the player (the public, for instance) to be pivotal in a random coalition. The index differentiates between large players (with substantial voting power) and small players with infinitesimal voting power, and these small players are called "the ocean". Please refer to the Appendix A for more details.

[12] The initial sample was considerably larger and included about 745 reported transactions. Following the strict rule regarding trading days, the authors had to exclude about 70% of the transactions, mostly due to considerably low trade (an average of about 2.4 trading days in the 11-day event window in the excluded transactions). Nonetheless, upon comparing the final and reduced sample, the authors can safely say that the final sample fairly represents the initial one, in terms of corporate performances, ownership, and capital structure, as well as in terms of transaction distribution over time and topics. For robustness, the authors also considered other trading restrictions. The results are quite similar to those reported in this paper.

of 218 RPTs in 129 companies and includes 102 transactions in 53 family-owned companies, where the controlling owner has more than 50% of both controlling and residual rights. The Israeli market is known to be highly concentrated. The average insiders' shareholding is about 74.1%, which is a bit higher than the overall market for this period (Lauterbach & Tolkowski, 2007).

Table 1

Descriptive Statistics—Summary Variables by Ownership Structure

	All	Non-family-owned firms	Family-owned firms	*p*-value of *t*-test for difference	*p*-value of Wilcoxon test for difference
Panel A: Descriptive statistics					
Assets	7.77 (26.9)	9.91 (35.3)	5.33 (10.7)	0.18	0.16
ROA	-1.77% (14.9%)	-3.71% (15.1%)	0.42% (14.4%)	0.04	0.09
Leverage	73.4% (25.5%)	71.7% (25.4%)	75.3% (25.4%)	0.3	0.84
DIV	32.1% (46.8%)	29.3% (45.7%)	35.3% (48%)	0.3	0.34
EXT_DIR	25.0% (8.0%)	24.9% (8.4%)	25.1% (7.5%)	0.85	0.79
HOLD	74.1% (13.7%)	70.0% (15.6%)	78.7% (9.3%)	< 0.01	< 0.01
MSCNT	0.854 (0.179)	0.725 (0.157)	1.00 (0)	< 0.01	< 0.01
Panel B: Average CAR (-5, +5) according to the type of transaction					
Fiscal transaction	1.02% (11.2%) [74]	2.89% (11.6%) [27]	-0.05% (10.8%) [47]	0.28	0.47
Financial transaction	0.70% (12.9%) [92]	1.51% (15.2%) [52]	-0.34% (9.0%) [40]	0.47	0.18
Compensation transaction	-0.72% (15.9%) [52]	1.19% (17.6%) [37]	-5.44% (9.5%) [15]	0.09	0.11
All	0.47% (13.2%) [218]	1.73% (15.3%) [116]	-0.96% (10.1%) [102]	0.12	0.08
p-value of ANOVA	0.75				
p-value of Kruskal-Wallis	0.21				

Notes. (1) The standard deviation is in parentheses; and (2) In panel B, the number of observations is reported in the square brackets.

Table 1 compares the characteristics of companies reporting an RPT classified by ownership structure. *DIV* is a dummy variable equaling one if the company announced a dividend in the current year prior to RPT; CAR (-5, +5) is the 11 days' cumulative abnormal return around the announcement of RPT. *ROA* is the known return on assets. *Leverage* is the book value of debt to the book value of equity. *EXT_DIR* is the proportion of outside directors of the total directors. *HOLD* is the percentage of a firm's shares held by insiders (large shareholders, executives, and directors). *FAM* is a dummy variable equaling to one, if more than 50% of the company's equity is held by a single shareholder. *MSCNT* is the firm controllers' aggregate Milnor-Shapley oceanic voting power index.

Not surprisingly, family-owned RPT firms are more closely held with average holdings by insiders of 78.7% compared with a 70.0% level in non-family RPT firms. The more closely-held RPT firms tend to be significantly smaller, although seemingly more profitable (an average *ROA* of -3.7% compared with a positive 0.4% for family-held RPT firms) than the widely-held RPT firms in the sample.

MSCNT represents the Milnor-Shapley oceanic index for a firm's major owners' strategic control. Naturally, when a single owner or family owns more than 50% of the firm (i.e., family-owned firms), *MSCNT* takes the value of one. The mean of *MSCNT* of the entire sample is 0.85, which further suggests that strategic control power is highly concentrated, with weak control and oversight power by outside shareholders.

Panel B focuses on the CAR around the RPT announcement and its relation to family or non-family-owned firms. The overall (-5, +5) average CAR is about 0.47%, which is statistically and insignificantly different from zero. However, the CAR around an RPT seems to differ as regards ownership structure. Specifically, the authors find an average CAR of 1.73% for non-family firms and a significantly lower CAR of -0.96% for family-owned firms. A closer look reveals that the source of the difference derives from the compensation transactions, whose value effect is substantially lower for family-owned firms. Moreover, although not statistically significant, the average CAR seems to be related to the type of transaction, as it varies from an average CAR of 1.02% around a fiscal transaction to a negative CAR of -0.72% around the report of a compensation transaction. This preliminary evidence suggests that RPTs are complex mechanisms, and further investigation is needed.

Regression Analysis

The authors' main interest in this paper is to reveal the intriguing relation between RPT value effect and ownership structure properties. However, the need to isolate this impact and produce a *ceteris paribus*[13] conclusion raises the necessity as well as the opportunity to check other possible factors with a potential influence on RPT outcome.

In accordance with the abovementioned hypotheses, the authors regress the CARs (-5, +5) of RPT on the following explanatory variables: (1) firm size as the natural logarithm of total assets; (2) the percentage of external directors in the directorate; (3) firm leverage as the debt to equity ratio; (4) *ROA* as earnings before interest and taxes (EBIT) divided by total assets; (5) *DIV* is a dummy variable that equaling one if the company announced a dividend in the current year prior to RPT; (6) *FAM* is a dummy variable that equals one when a firm is controlled by a single individual or family; (7) *FIST* is a dummy variable that equals one if the RPT is a fiscal transaction; (8) *FINT* is a dummy variable that equals 1 if the RPT is of a financial nature; (9) *COMP* is a dummy variable that equals one if the RPT is the owner's managerial compensation scheme; (10) *HOLD* is major shareholders' cumulative holdings (in decimal terms); and (11) the squared value of *HOLD* which serves as an indicator for the possible non-monotonic nature of the RPT-ownership relation. Finally, in order to take into account possible industry-fixed effects, the authors add four dummy variables according to five major industry attributes.

A proper comment regarding the two of the above variables is necessary. The authors check and find significant correlations between financial leverage as well as the percentage of external directors with firm size. To avoid multi-colinearity problems, the authors "cleaned" these variables from firm size effects by regressing the leverage and the percentage of external directors on Ln (total assets) and using the residuals of these

[13] It is a Latin phrase, literally translated as "with other things the same" or "all other things being equal or held constant".

regressions as explanatory variables in the RPT CAR regressions.

Table 2 summarizes the results of the multivariate ordinary least square (OLS) regression. Columns I and II present models with industry-fixed effect dummy variables[14] (*IND_FE* = Yes), differentiated according to RPT type, i.e., fiscal and financial vs. compensation scheme for owner-CEO. Accordingly, Columns III and IV are non-industry fixed-effect models (*IND_FE* = No), differentiated according to RPT type.

Table 2

Factors Affecting RPT Impact on Firm Value

Variable	I	II	III	IV
SIZE	1.130*	1.098*	0.767	0.750
	(1.69)	(1.66)	(1.60)	(1.57)
EXT_DIR	1.092	0.605	0.565	-0.181
	(0.09)	(0.05)	(0.05)	(-0.01)
LEV	5.125	4.968	3.606	3.427
	(0.82)	(0.79)	(0.59)	(0.56)
ROA	3.359	3.451	1.015	1.244
	(0.39)	(0.40)	(0.13)	(0.16)
DIV	-0.888	-0.914	-0.915	-0.950
	(-0.55)	(-0.57)	(-0.57)	(-0.59)
FAM	-4.209**	-4.071**	-4.472***	-4.327***
	(-2.46)	(-2.36)	(-2.85)	(-2.74)
FIST	2.727		3.015	
	(1.14)		(1.25)	
FINT	1.699		1.951	
	(0.65)		(0.80)	
COMP		-2.142		-2.388
		(-0.93)		(-1.05)
HOLD	49.829**	50.637**	48.765**	49.441**
	(2.28)	(2.28)	(2.05)	(2.07)
SQ_HOLD	-29.708*	-30.165*	-29.508*	-29.764*
	(-1.91)	(-1.92)	(-1.74)	(-1.76)
IND_FE	Yes	Yes	No	No
Observations	218	218	218	218
Adjusted R^2	-0.0019	-0.0019	0.0043	0.0079

Notes. *T*-statistics, corrected for heteroscedasticity using the White method, are presented in parentheses below the coefficients; and (2) *, **, and *** indicate that the coefficient is significantly different from zero at the significance levels of 10%, 5%, and 1% respectively.

The authors present the results of the following regression:

$$CAR_{RPT} = \beta_0 + \beta_1 * SIZE_i + \beta_2 * EXT_DIR_i + \beta_3 * LEV_i + \beta_4 * ROA_i + \beta_5 * DIV_i + \beta_6 * FAM_i + \beta_7 * FIST_i + \beta_8 * FINT_i + \beta_9 * COMP_i + \beta_{10} * HOLD_i + \beta_{11} * SQ_HOLD_i + \psi_{ind} * Dumindustry_i + e_i \quad (1)$$

where CAR_{RPT} is the cumulative abnormal return, relative to the market model in the -5, +5 days' window around the RPT announcement; *SIZE* is the natural logarithm (Ln) of total assets; *EXT_DIR* is the percentage of external directors of the board; *LEV* is the debt to equity ratio; *ROA* is the ratio of EBIT to total assets; *DIV* is a dummy variable equaling to one if the company paid a dividend in the current year prior to the RPT announcement (zero if otherwise); *FAM* is a dummy variable equaling to one when a control group is homogenous (otherwise if *FAM* = 0); *FIST* is a dummy variable equaling to one when RPT is a fiscal

[14] The authors classified the firms according to five main industry attributes.

transaction, and zero if otherwise; *FINT* is a dummy variable equaling to one when RPT is of financial nature, and zero if otherwise; *COMP* is a dummy variable equaling to one when RPT refers to an owner-CEO's compensation scheme; *HOLD* is the major shareholders' cumulative holdings (in decimal terms), while *SQ_HOLD* is its squared value; and *IND_FE* indicates whether industry dummy variables are used to detect industry-fixed effects or not ("yes" or "no" respectively). To avoid multi-collinearity problems, *LEV* and *EXT_DIR* are "cleaned" from *SIZE* effects, i.e., in the regressions of Table 2, the authors use the residuals of the regressions of *LEV* and *EXT_DIR* on *SIZE*, instead of the raw variables themselves. The Columns I and II represent models with industry-fixed effects, separated according to RPT type (fiscal/financial or CEO compensation scheme). Columns III and IV are models without industry-fixed effects which differ with regard to RPT type (fiscal/financial or CEO compensation scheme).

The authors start the inspection of Table 2 by referring first to the significant control variables. The most prominent is the family ownership attribute which significantly lowers the RPT value effect by approximately 4%. This finding, which is compatible with H2, is an additional support for the negative impact of family ownership on firm performance, as described in previous literature.

Firm size effect is positive and significant at the level of 10% in the models with industry-fixed effects and marginally significant at this level in the non-fixed effect regressions. Hence, the authors get some (albeit weak) supports for H3 which proposes that RPTs tend to have a better (or less damaging) impact on larger companies presumably because of the higher intensity of public attention and media coverage.

Although RPT type attributes do not yield significant results, it appears that financial and fiscal RPTs (which present positive coefficients) are more value-enhancing (more propping) and less damaging, in comparison with managerial compensation scheme of RPTs (presenting a negative impact). This result is a *ceteris paribus* support for the higher average CAR of these transactions in the simple and descriptive statistics presented earlier.

Another interesting albeit insignificant result is the lack of external directors' effect on RPT value impact. This finding is clearly a result of the external directors' nomination mechanism in Israel. Almost all Israeli external directors are personal appointments of controlling shareholders, whose future employment depends upon the whims and satisfaction of these same controllers[15]. Thus, the authors should not expect them to provide a spectacular monitoring effect and substantially reduce damaging (tunneling) and sub-optimal RPTs.

A firm's leverage coefficients are also totally insignificant and do not support H4 which predicts a positive relation between leverage and RPT value impact, due to lenders' supervision. This result raises the possibility that lenders are insufficiently aware of their publicly-traded debtors' disorderly conducts.

However, as previously stated, the authors' main goal is to reveal the relation between RPT value effect and ownership concentration. The level of holdings coefficient is significantly positive at the level of 5% in all models, reflecting an intrinsic solid incentive effect. In contrast, the effect of the squared transformation of holdings in each model is negative and significant at the level of 10%. Taking into account the two results together yields a support for H1 which predicts an inverse U quadratic relation between ownership concentration and RPT value effect.

[15] This was the case during the sample years. However, in 2011, the Israeli parliament enacted the corporate law 16th amendment act which restrained the influence of controlling shareholders on external directors.

This estimated ownership-RPT impact relation is similar to the well-documented relation between ownership concentration and Tobin's Q. The resemblance actually exposes one of the possible mechanisms behind the Q-ownership phenomenon by providing, perhaps for the first time, a direct measurable factor with similar value consequences. Moreover, the explanation for the puzzling Q-ownership, as emerged from the findings of this paper, seriously weakens the claim of ownership endogeneity originally raised by Demsetz and Lehn (1985). In light of the findings of this paper, the Q-ownership relation is more likely a result of insiders' activity, as it is perceived by the market, rather than an artificial result arising from insiders' predetermined preferable Q choice.

Setting first-order conditions with respect to the level of major shareholders' holdings $-\frac{\partial CAR_{RPT}}{\partial HOLD}=0$, while noting that $SQ_HOLD = HOLD^2$, yields a maximized level of CAR_{RPT} holdings which is equal to $\frac{-b}{2a}$, when a and b represent the coefficients of *SQ_HOLD* and *HOLD* respectively. The authors now calculate the above expression based on the model with the highest explanatory power (Model IV) and discover that the level of insiders' holdings which maximizes the RPT value impact is 83%.

The interpretation of the resulting ownership effect in light of the theory is straightforward. According to the obtained maximizing value, the holding incentive effect tends to be dominant when large shareholders' cumulative holdings are less than about 83% of the firm's equity. This dominancy is reflected in the positive ownership-RPT impact relation below the stated level. However, the concave (diminishing marginal change[16]) relation indicates that the incentive effect is gradually weakened and gives way to the alternative contradictory effect.

As major shareholders accumulate enough voting rights, they become too strategically powerful. This excessive strategic power helps to ease the RPT approval process within the company's legal quorums and alleviates their costs of other shareholders' exploitation. The described dynamic intensifies, as insiders' holdings approach the threshold of 83%. Beyond this level, the excessive strategic power is potent enough to overcome the incentive effect of holdings. Thus, the joint impact of these two contradictory effects generates a non-monotonic quadratic (inverted U) relation between the RPT value effect and large shareholders' level of equity holdings.

An interesting question is: What is so special about the 83% holding level which reverses the ownership-RPT relation from an increasing relation into a decreasing one? In order to try and answer this question, the authors should first shed some light on the required procedure involved in the RPT approval process.

According to the Israeli corporate laws in existence during the sample years, RPT requires a non-trivial majority in a shareholders' meeting. This majority should include at least one-third of the shareholders' votes, which should not be "contaminated" with possible extraneous or conflicts of interest due to certain private benefits (besides the wealth effect of stock value)[17]. Thus, beyond the 83% level, controllers need only the support of a bit more than about 5% of the votes held by the minority of shareholders. Taking into account the

[16] It is obvious that $\frac{\partial^2 CAR_{RPT}}{\partial HOLD^2}<0$.

[17] The corporate law 16th amendment act (2011) raises the requirement to 50% of "non-contaminated" votes.

low responsiveness and attendance of these shareholders in major votes, the percentage of votes which have to be persuaded[18] is even lower, making for a swift RPT approval process.

Lauterbach and Tolkowski (2007) found firm valuation (Q) maximizing ownership in Israel to be about 68%, which is considerably lower than the RPT value maximizing level of insiders' holdings (about 83%) of this paper. This gap could be explained by the difference between the samples. The sample of this paper is not representative and is biased towards companies in which RPTs are considered to be more common events. The dissimilarity of the samples is also reflected in the fact that the average insiders' holdings is about 10% higher than the corresponding value mentioned by Lauterbach and Tolkowski (2007). One possible interpretation is that the tendency to use RPTs is positively correlated with ownership concentration, which is higher in more closely-held firms. The gap in the value maximizing ownership level can also indicate the presence of additional (hidden) factors (beside RPTs) that shape a firm's final valuation. While RPTs are relatively rare and considered to be special events, other factors probably relate to the efficiency of more routine conducts.

Up until now, the analysis was used to aggregate insiders' equity holdings as a proxy for ownership concentration. However, as suggested by the theory and supported by the empirical findings, the authors have learned that a substantial portion of the RPT-ownership quadratic type emerges as a result of a strategically-oriented reason. Moreover, the authors have seen that the homogeneity of a control group (represented by the FAM regressor), which basically reflects an aspect of strategic exclusivity, is a significant factor in explaining the value impact of RPTs. Cumulative insiders' holdings lack the ability to concurrently express controllers' strategic power distribution. Therefore, in order to simultaneously capture several strategic aspects, the authors need a more elaborate measure, with the potential to estimate ownership concentration with higher precision. This measure, due to its strategically multi-dimensional approach, will also eliminate the need to control for control group homogeneity.

As an elaborated ownership concentration measure, the authors use Milnor and Shipley's (1978) oceanic voting power of small shareholders. The Milnor-Shapley power index (presented more rigorously in the Appendix A) measures the aggregate probability of shareholders, each with infinitesimal voting power (the public) to be pivotal in formatting a random winning coalition. This index ranges between zero and one and is negatively correlated with ownership concentration. Therefore, its complement[19] is positively correlated with ownership concentration and reflects aggregate insiders' (large shareholders') strategic power. Thus, in Table 3, the authors use the aggregate insiders' Milnor-Shapley oceanic strategic power and its squared value (*MSCTRL* and *SQ_MSCTRL*[20] respectively) instead of just aggregate insiders' holdings (*HOLD* and *SQ_HOLD* respectively).

While other factors yield similar results as before, all regression models now present positive *MSCTRL* and negative *SQ_MSCTRL* coefficients which are significant at the level of 1% as well as higher explanatory power (adjusted *R* squares). Thus, the non-monotonic quadratic (inverted U) relation is now much stronger and significant.

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[18] Because the term "contaminated with conflict of interests" is subjected to judicial interpretation, the persuasion is sometimes extremely easy and not even necessary (for instance, the case in which a minority shareholder is an employee of the controller).

[19] The divergence from one.

[20] *MSCTRL* is the major shareholders' cumulative Milnor-Shapley oceanic voting power index (in decimal terms), while *SQ_MSCTRL* is its squared value.

Table 3

Factors Affecting RPT Impact on Firm Value

Variable	I	II	III	IV
SIZE	1.095	1.065	0.768	0.752
	(1.60)	(1.57)	(1.58)	(1.55)
EXT_DIR	1.030	0.537	0.633	-0.127
	(0.08)	(0.04)	(0.05)	(-0.01)
LEV	5.251	5.080	3.643	3.480
	(0.85)	(0.82)	(0.62)	(0.59)
ROA	4.366	4.461	1.919	2.148
	(0.50)	(0.51)	(0.24)	(0.27)
DIV	-0.762	-0.788	-0.800	-0.836
	(-0.48)	(-0.49)	(-0.51)	(-0.53)
FIST	3.107		3.347	
	(1.26)		(1.34)	
FINT	2.125		2.339	
	(0.82)		(0.95)	
COMP		-2.567		-2.758
		(-1.08)		(-1.19)
MSCTRL	73.409***	74.123***	72.429***	73.431***
	(3.31)	(3.31)	(3.2)	(3.21)
SQ_MSCTRL	-51.960***	-52.132***	-51.949***	-52.250***
	(-3.52)	(-3.5)	(-3.46)	(-3.46)
IND_FE	Yes	Yes	No	No
Observations	218	218	218	218
Adjusted R^2	0.0047	0.0086	0.0111	0.0252

Notes. T-statistics, corrected for heteroscedasticity using the White method, are presented in parentheses below the coefficients; and (2 *** indicates that the coefficient is significantly different from zero at the significance level of 1%.

The authors now apply an identical maximizing value procedure using the model with the higher explanatory power and find that the level of insiders' aggregate strategic power (a proxy for ownership concentration used in this paper) which maximizes RPT value effect is 70.26%.

Hence, when estimating ownership concentration using a strategic power approach, the authors discover that RPT value effect tends to increase with insiders' power as long as small shareholders' (the public) strategic power is above approximately 30%. However, when a firm becomes more ownership-concentrated and public power deteriorates below this level, the RPT value effect monotonically decreases together with major shareholders' increasing strategic power.

Interpreting the strategic approach findings, the authors may say that the market (which mainly reflects transactions of small shareholders from the public) "counts" on the major shareholders' incentive effect as long as the public has enough power to effectively monitor and influence insiders' actions. Below the 30% level, public power is perceived as insufficient, and the anticipated insiders' cost of looting the firm becomes diminutive, causing the RPT value effect to decrease with major shareholders' strategic power. This interpretation of enough or insufficient public power also properly explains the negative influence of family firms on RPT value, as public strategic power within family firms is practically zero.

Summary and Conclusions

This paper offers a possible explanation for the well-known relation between firm value (Tobin's Q) and ownership concentration by examining the consequences of a firm's controllers' actions through RPTs. The authors investigate 218 RPTs in 129 publicly-traded firms in Israel, an economy with under-median corporate

governance quality, during the years of 2001-2003. The authors find a similar market response (CAR) to fiscal and financial deals but, on average, a lower (negative) market reaction when the RPT is a managerial compensation scheme for a controlling shareholder. The negative value impact of CEO compensation supports previous literature describing significantly higher and unjustified owner-CEO pay in Israel.

In the cross-section analysis, the authors find some supports for the hypothesis that RPTs in large companies are, on average, less damaging (more value enhancing), presumably as a result of public attention and media coverage.

The main purpose of this paper is to illustrate the relation between the value effect of RPTs and ownership concentration. Pursuit of this goal reveals two important phenomena. First, market reaction to RPTs in family firms is *ceteris paribus* significantly lower at about 4%, in comparison with non-homogenous control groups. The result indicates that RPTs in family firms are more likely to be sub-optimal (tunneling) transactions and practically a form of private benefits of control consumption. This finding joins previous findings describing problematic conducts and higher consumption of private benefits in homogenous control groups.

The second revealed manifestation is a quadratic inverted U relation between RPTs' value effect and large shareholders' cumulative equity holdings. This non-monotonic relation is similar to the worldwide and well-documented relation between Tobin's Q and aggregate major holdings. As in the latter case, this is most likely a result of two mutually exclusive effects: the incentive effect and the excess strategic power effect. While the incentive effect is dominant at lower levels of insiders' holdings creating an increasing relation, the excess strategic power effect gradually increases with the growth of insiders' holdings diminishing the marginal RPT value and eventually prevails when major holdings reach the 83% threshold. From this point on, RPT value effect becomes a decreasing function of major shareholders' ownership level.

In order to accurately reflect the strategic effect as well as describe ownership concentration more properly, the authors use the oceanic Milnor-Shapley strategic power index which eliminates the need to control insiders' homogeneity, i.e., the family firm attribute. Replacing the level of insiders' holdings by the elaborated measure yields a better statistical significance of the inverted U relation as well as higher regression explanatory power.

RPT value is an increasing function of ownership concentration as long as public strategic power which correlates the ability to oppose suboptimal actions is above 30%. As insiders' holdings increase or become more homogenous, small shareholders lose their ability to effectively influence or monitor, controllers become too strategically powerful, also due to the easiness of collaboration, and firm abuse turns out to be inexpensive. As a result, the RPT value effect is converted into a decreasing function of ownership concentration, when a firm's controllers exceed the 70% strategic power threshold. The result also explains the negative influence of family firms over RPT value, as controllers in these firms possess full strategic power leaving small shareholders from the public with no power at all.

As a concluding remark, the authors direct attention to the fact that better investor protection should lower the minimum strategic power needed to shield public interests. Consequently, the dynamic described above is subjected to the effectiveness and intensity of regulation as well as the level of enforcement. Thus, the authors expect different judicial and/or corporate rule regimes to yield different variations of the intriguing relation discussed in this paper. Israel's economy and capital markets have gone (and still going) through some major regulatory and structural reforms over the last decade. Therefore, the validity of the findings of this paper should also be examined in light of future researches.

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Appendix A: The Milnor-Shapley Oceanic Voting Power Index

Milnor and Shapley (1978) considered a voting game in which some "large" players possessed sizeable voting power, while the residual votes were divided among many "small" participants, leaving each an infinitesimal weight (the "oceanic" players).

The Milnor-Shapley index calculates the probability of each player to be pivotal in formatting a random winning coalition.

Milnor and Shapley's (1978) voting game refers to the following payoff function:

$$V(S) = \begin{cases} 1 & if \quad W(S) \geq c \\ 0 & if \quad W(S) < c \end{cases} \tag{A.1}$$

where $W(S)$ is the fraction of total votes held by coalition S and c is the winning percentage threshold.

The Milnor-Shapley index for a major player i is given by:

$$\phi_i(V) = \sum_{S=M-i} \int_h^g t^s (1-t)^{m-s-1} dt \tag{A.2}$$

where M is the set $\{1,2,\ldots m\}$ of major players, S is the set of any possible coalition formed by major players without player i. The cardinal numbers of the sets M and S are denoted by m and s respectively.

The limits h and g are given by:

$$h = \langle \{c - W(S-(i))\} / \alpha \rangle \quad and \quad g = \langle \{c - W(S)\} / \alpha \rangle \tag{A.3}$$

where α is the fraction of votes held by the ocean, and <x> indicates the median among 0, x, and 1.

Since the sum of powers is one, the power of the ocean is given by:

$$\phi_o = 1 - \sum_{i=1}^{m} \phi_i(V) \tag{A.4}$$