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Institutional Investors' Impact on the Terms and Outcome of Freeze-out Tender Offers

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September 2018

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We have benefitted from the comments of Lucian Bebchuk, Bernie Black, Asaf Eckstein, Miriam Schwartz-Ziv, and presentations at Bar Ilan University and the 2017 Ackerman Corporate Governance Conference. All remaining errors are our own. Financial support by the Raymond Ackerman Family Chair in Israeli Corporate Governance is gratefully acknowledged.

Abstract

We study institutional investors' impact on going private tender offers by controlling shareholders ("freeze-out" offers) in Israel, where regulation over such offers is loose and where (consequently?) about half of the offers are rejected. In 35% of our sample firms institutional investors have no holdings, which facilitates novel analysis of the fundamental effect of institutional presence. We find that: 1) institutional presence increases the likelihood that the offer is rejected; 2) in accepted offers, when there are indications of pre-negotiations, institutional presence increases the offer premium; and 3) rejection decisions appear on average rational with or without institutional investors. Interestingly, throughout our analysis, institutional presence appears as the key variable; the exact level of institutional holdings has minute insignificant effects.

Keywords: Freeze-out transactions, Institutional Investors activism, bargaining with controlling shareholders, tender offers

JEL Classifications: G23, G32, G34, G38

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1. Introduction

Firms with controlling shareholders are pervasive around the world, yet they pose to regulators a host of unresolved agency problems. The main challenge is that some controlling shareholders tend to extract private benefits from the firm at the expense of other shareholders – see Dyck and Zingales (2004). Public shareholders expropriation is carried out via self-dealing and other forms of tunneling by the controlling shareholders – see Johnson, Laporta, Lopez-de-Silanes and Shleifer (2000) and Atanasov, Black and Ciccotello (2011) for definitions, and Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2008) for some empirical evidence.

The main regulatory protection against tunneling is granting the potentially offended public shareholders some special rights. For example, it is typically required that firm transactions with controlling shareholders be confirmed by various firm board committees and by a vote of non-interested public shareholders. One of the reasons for such regulations is the hope that institutional investors will examine every resolution and will serve as representatives or unbiased professional gatekeepers for the rest of the public investors. Thus, in many economies around the globe, institutional investors are required by law to vote (and sometimes even to disclose to the public their vote) on "agency sensitive" proposals in closely-held firm.

The voluminous academic literature on institutional investors remains unclear as to what extent institutional investors exert due efforts to monitor and discipline publicly-traded companies, upholding and promoting "small investors'" interests. On one hand, in practice, some institutional investors commonly raise corporate governance and sustainability issues before firm management and its Board of Directors (McCahery, Sautner, and Starks, 2016). Hence, some institutional investors appear as

alert gatekeepers. On the other hand, it can be argued that institutional investors are preoccupied with their principal role of achieving high returns on their portfolios and are largely indifferent to and incompetent in corporate governance issues. Consistent with this view, professional activists and private-equity funds emerged as a response to the lax passive conduct of institutional investors. It appears that institutional investors are not avid protectors of the public and may have other motives and considerations.

We contribute to the debate by examining institutional investor response in the extreme situation of freeze-out tender offers. In these deals the controlling shareholders issue a tender offer to all public shareholders proposing to buy all public shares, and if successful, they take the firm private. Freeze-out transactions are suspect as tunneling events because it is the controlling shareholders who initiate them and because they (the controlling shareholders) typically possess inside information. In some sense freeze-out transactions are large scale insider trading. Atanasov et al (2011) classify freeze-outs as a potential equity tunneling, that is as a potential attempt to change controlling shareholders' share in the firm at the expense of minority shareholders.[1]

We expect institutional investors to act relatively decisively in freeze-out transactions because of several reasons. First, the transaction is big and significant to all shareholders. Second, as a terminal deal, motives like maintaining good relations with the firm, which regularly inhibit or restrain institutional engagement, disappear, as the firm is about to get delisted from the exchanges. Last, these transactions are

[1] Evidence on freeze-out offers is scarce. However, Atanasov, Black, Ciccotello and Gyoshev (2010) document how in Bulgaria a change in the law increased the median freeze-out offers premium from about zero to 42%. Apparently, before the law reform, freeze-out offers in Bulgaria were grossly exploitive.

probably at the focus of media and regulatory attention, thus for public image reasons "responsible" institutional investors must opine and react.

Our sample comprises 201 freeze-out tender offers made by controlling shareholders of Israeli publicly traded firms during 2000 – 2016. Israeli regulation of tender offers is lax. Unlike the U.S., in Israel there are no special procedural requirements for tender offers. Freeze-out offers can be made by the firm itself (requires only a regular board decision that does not involve special procedures, special majority or even fairness opinion). Alternatively, controlling shareholders make the offer directly to the public. Disclosure requirements are likewise loose. Besides the offer price, the tender offer provides only concise information about the controlling shareholders' holdings and on the recent stock price record. In such a relatively unregulated environment, it is easy for controlling shareholders to make freeze-out offers and some of them may even attempt exploitive offers to the public.

The loose regulatory environment and the possibility of tunneling via opportunistic exploitive freeze-out offers, challenges institutional investors in Israel further than in the U.S. Perhaps in such extreme situations institutional investors' actions in defense of the public can be observed more clearly.

We find that institutional investor presence increases accepted offers' premium significantly. In accepted offers, the mean premium increases from 19.4% when institutional investors are absent to 27.0% when they are present, an increase of 7.6%. Controlled regression tests suggest that the mean increase in premiums due to institutional investors' presence is even higher, assessing it at about 12% on average. In fact, when there are indications about prior negotiations between controlling

shareholders and large public shareholders such as institutional investors, our estimates show an average increase in offer premiums of about 17%.

The presence of institutional investors also increases the likelihood of freeze-out offers' rejection. However, we find that rejection decisions are on average rational (i.e., share price abnormal increase from offer announcement to half a year after offer rejection exceeds the offer premium). This rational rejection evidence does not depend on whether or not institutional investors hold firm shares. Nevertheless, some interesting cross-sectional variation can be observed: institutional investors presence hurts (serves) other investors interests when offer rejections are (are not) preceded by pre-negotiations. We discuss this intriguing cross-sectional result, and conjecture it might emanate from strategic long-term motives of some institutional investors.

Finally, an interesting finding is that the level of institutional holdings as well as the concentration of institutional investor holdings, approximated by Herfindahl index, are insignificantly associated with the offer rejection likelihood and with the accepted offer premium. Evidently, institutional presence (and not institutional holding level) appears as the key variable in all analyses conducted by us, and this is perhaps our most significant new result and contribution.

Section 2 provides a concise background on institutional investors' activism and on freeze-out offers, and presents our hypotheses. Section 3 describes the sample and data. Section 4 reports and discusses our results, and Section 5 concludes.

2. Institutional Investor Impact on Going-Private Tender Offers

2.1. Previous evidence on institutional investor engagement

The academic literature generally accepts that institutional investors are more informed (Sias and Starks, 1997; Nagel 2005; McCahery, Sautner, and Starks, 2016), help to diminish the information asymmetry (Boone and White, 2015), and engage in some monitoring activities (Callen and Fang, 2013). Institutional investors also tend to suffer less than the public at large from behavioral biases (Barber and Odean, 2008; Kaustia, 2010; Chang, Solomon, and Westerfield, 2016).

However, it is not clear that institutional investors are so anxious to act on firm governance. There exist engagement-mitigating factors. First and foremost, institutional investors specialize and are competing with each other on their portfolio returns. Achieving high returns absorbs all their time, attention and energy. Corporate governance issues are typically less urgent (i.e., with a longer-term perspective), or require some activist specialization that institutional investors lack. Second, some institutional investors want to keep good relations with their portfolio firms' management teams in order to obtain some responses from them on regular days and when firm-specific events occur. Hence, any criticism of management is moderated.

Recent research uncovers however some reliable evidence on institutional investors' engagement and on institutional investors' non-trivial impact. Aggarwal et al. (2011) show that an increase in institutional ownership induces subsequent improvements in firm-level governance. Chhaochharia et al. (2012) report that local institutional ownership (from the same state) is associated with better corporate governance. It appears that local institutional ownership facilitates engagement that improves corporate governance and firm profitability. Appel, Gormley, and Keim

(2016) find that large institutional investors' presence is associated with improved governance (fewer takeover defenses, for example). Liu, Low, Masulis and Zhang (2017) demonstrate that when institutional investors are distracted from board monitoring, they are less likely to discipline ineffective firm directors. Finally, Appel, Gormley and Keim (2017) present evidence that true activists take bolder actions in firms where passive institutional ownership is relatively large.

Recent surveys of institutional investors such as McCahery, Sautner, and Starks (2016) highlight institutional investor attitude and positions towards engagement and activism. Most institutional investors prefer selling their shares ("exit") as a response and threat to deficient corporate governance companies. However, "voice" is also customary, as some institutional investors are voting against firm management and/or expressing their concerns behind the scenes by engaging management privately.

Closer to our study, the impact of institutional investors should manifest itself more clearly in significant firm decisions. Gaspar, Massa, and Matos (2005) find that target firms held by institutional investors extract on average a 3% higher premium in mergers and acquisitions. Other studies on mergers and acquisitions also find a significant impact of institutional investors. For example, Chen, Harford, and Li (2007) show that holdings by independent long-term institutions are positively associated with post-merger performance. Moreover, the presence of these institutions makes withdrawal of bad proposals more likely.

Previous evidence on the behavior of institutional investors in Israel is scarce. The most recent study, Hamdani and Yafeh (2013), analyzes votes cast in 2006 by Israeli institutional investors on over 1000 proposals at about 250 firms. They conclude

that the voting behavior of Israeli institutional investors does not indicate effective systematic gatekeeping.

2.2. Freeze-out tender offers

The financial and legal literature has studied various aspects of going private transactions. Focusing on companies incorporated in Delaware, for example, Subramanian (2007) shows that premiums in going-private mergers in the U.S. tended to be higher than those of going-private tender offers (perhaps because tender offers' judicial review used to be less demanding). However, following the Delaware courts' adoption of a unified approach to freeze-out tender offers and mergers in 2005 (since June 6, 2005) deal outcomes have converged - see Restrepo and Subramanian (2015).

Subramanian (2005) elaborates the pros and cons of freeze-out deals (going-private transactions initiated by controlling shareholders). On the one hand, these transactions can serve legitimate business purposes. For example, buying out minority shareholders can facilitate synergies with other companies affiliated with the controlling shareholder. Further, delisting the company can save the compliance costs associated with being a publicly-traded company subject to onerous regulation, and it can conceal sensitive information about the firm from competitors' and the public.[2] On the other hand, even when there is a genuine business rationale for taking the firm private, the controlling shareholders can exploit their informational advantage to buy minority shares at a price that does not reflect their fair value (Bebchuk and Kahan, 2000).

[2] Note that going-private transactions initiated by controlling shareholders are unlikely to be motivated by the desire to replace existing management because the controller is already in charge and will maintain her control over the firm.

The law protects public investors from the potential exploitation of freeze-out transaction. In the United States, freeze-out transactions require the firm's board of directors' involvement. If the transaction is structured as a tender offer, the board is required to render its opinion on the transaction, and it will normally rely on an expert fairness opinion. Unlike in the U.S., the Israeli law does not require any special board discussion or vote on going private tender offers. Boards are also not required to state that the offer price is fair. Further, controlling shareholders making a freeze-out tender offer have no extensive disclosure requirements, and take their offers directly to minority investors.[3] The Israeli law allows controlling shareholders to take the company private if at the end of the offering period controlling shareholders own at least 95% of the company's shares.

It is reasonable to assume that in an environment of light freeze-out regulation such as Israel, public investors would be suspicious about freeze-out offers. The announced motivation for the offer, if provided by the controlling shareholders, may not be trustworthy, and in any case investors need to take into account the possibility that controlling shareholders time the offers, i.e. offer to purchase all shares when the stock is undervalued. In such a murky dubious atmosphere many offers are rejected, and those that are accepted most probably incorporate a premium that overcomes public's exploitation fears.

[3] In contrast, in Israeli going-private mergers, the controlling shareholders are legally compelled to negotiate the transaction with the board. The board, in turn, normally relies on a fairness opinion to approve the transaction. The transaction is also subject to shareholders' approval, and can take place only if a majority of minority shareholders approve. It could become subject to judicial review, should minority shareholders bring a lawsuit accusing the directors of breaching their fiduciary duties. Thus, the more common transaction structure for going private transactions in Israel is the freeze-out tender offer.

The extra premium necessary to overcome public investors' hesitations depends on the suspicion level. There are several factors that contribute or promote suspicion. First is the degree of uncertainty about the firm and its stock value. When firm stock price is more volatile, there are more opportunities for timing, hence public suspicion of freeze-out offers increases. Second, there are occasions when timing becomes more probable. For example, when a freeze-out offer is made after a period of severe stock underperformance, public disquiet about the freeze-out offer increases. Last is the information environment. When there is less public information about the firm, because of its small size for example, information asymmetry between public and controlling shareholders as well as public apprehension are amplified. Thus, we expect that accepted offers' premium is positively correlated with stock return volatility and negatively correlated with firm size and pre-offer stock performance.

Another possible remedy to public fears and hesitation is "behind the scenes" communication with large public investors such as institutional investors. It is likely that such communications end up in an upwardly revised offer price that improves offer acceptance probability. Thus, identifying possible "negotiations" between the firm and its large public shareholders and controlling for them, should increase our understanding of the offer acceptance likelihood and the offer premium.

2.3. Hypotheses

There exist several approaches with regards to institutional investor activism. The first view is that institutional investors are preoccupied with achieving high returns on their portfolios. Thus, they regularly pay little attention to corporate governance

issues and are passive even regarding large corporate events such as freeze-out offers. This fits as a Null hypothesis:

Hypothesis 1: Institutional investor holdings have no impact on the outcome of freeze-out tender offers.

The above Null hypothesis appears a bit extreme because freeze-out tender offers are relatively big deals that justify institutional investor attention. Such large deals are probably analyzed by institutional investors who hold the firm, and most of them probably opine and react. Opposing a freeze-out deal or its terms is more reasonable also because engagement-restraining factors such as keeping the long-term relations with the firm become less relevant when the deal is terminal.

The emerging hypothesis is that institutional investors analyze each freeze-out offer and if it is "fair" ("unfair") they approve (disapprove) it and tender (don't tender) their shares. Institutional investors with their professional analytic tools dissect each freeze-out deal and provide a rational response to it. This can be phrased as

Hypothesis 2: Institutional investors provide an unbiased rational response to each freeze-out offer.

Hypothesis 2 has several implications. First, higher institutional ownership may increase the frequency of offer rejection, as some unfit offers would be identified and rejected by institutional investors. This prediction is however tenuous because controlling shareholders may know that in general they cannot fool institutional investors, and may be deterred from making unfair offers. However, since in Israel making freeze-out offers is easy and relatively cheap, we propose

Hypothesis 2a: Higher institutional ownership increases the frequency of offer rejection.

Hypothesis 2 posting institutional investors as efficient gatekeepers also suggests that on average rejected offers deserved rejection because they were exploitive. Exploitive offers may be based on positive inside information about the firm. If controlling shareholders were trying to buy the firm from the public before this information becomes publically available, and if they fail because of institutional investors' resistance, then after an offer is rejected the firm stock should not reverse to its pre-offer price and would exhibit a higher cumulative gain than the offer premium. The implication is

Hypothesis 2b: When institutional investors hold firm's stock and resist the offer, public investors do not lose, as, on average, the stock's future cumulative excess return exceeds the offer premium. Further, institutional investors presence should increase the "net gain" to public shareholders from offer rejection.

Last, accepted offers' premia may be higher when institutional investors hold the stock. This is because when professional institutional investors hold the stock, controlling shareholders must make a relatively "fair" offer in order for it to be accepted. The controlling shareholders might also conduct "behind the scene negotiations" with the institutional investors, which typically results in increased offer price. In contrast, when only small shareholders hold the stock, some exploitive freeze-out offers might still (by chance) pass. This suggests

Hypothesis 2c: On average, accepted offers' premia increase with institutional holdings.

2.4. Contribution of the study

We contribute to the literature on institutional investors' impact by examining an extreme situation (freeze-out tender offers) in an extremely lax regulatory environment (Israel). This endeavor should yield a relatively sharp test of the hypothesis that institutional investor are public investors' shield vis-à-vis firm controlling shareholders. Existing evidence on this hypothesis is mixed.

We also offer a finer dissection of the institutional holdings construct. We start by comparing the response of firms with and without institutional investors. Then, we examine the marginal impact of an additional 1% in institutional holdings and the effect of institutional holdings' concentration. In this step by step analysis, the first step of comparing firms with and without institutional holdings proves most important, as it offers some significant novel observations on the role of institutional investors. These observations appear to be our most important contribution to existing knowledge.

3. Sample

3.1. Sample construction

We search Maya (the web site of Tel Aviv Stock Exchange that assembles all public companies announcements) for freeze-out offers, and find 274 such offers in 2000-2016. From offer announcements we extract information about: the offer price, the offer deadline, and the controlling shareholders' holdings in the company on the eve of the offer. If the offer price is revised before the offer deadline, we use the revised offer price.

The Maya site also serves to download the annual reports of the companies for the pre-offer year. From these reports we extract information needed for computation of firm's size, ROA, leverage and Tobin's Q.

From another section of the Tel Aviv Stock Exchange web site we collect our stock return and trading volume data, and our company industry classification. Finally, institutional investors' holdings in the companies is provided by Praedicta (a local data vendor).

From the initial sample we exclude companies with zero trading volume during month preceding the offer (43 cases) because for these offers the premia cannot be credibly calculated. We also omit 30 offers in which the offer price is below the recent stock price. (We compare offer price to stock price on day -42, day -6, and day -1 before the offer announcement, and only if offer price is below stock price in all these dates we omit the offer.) Offers with consistent negative premia are probably offers for firms in distress that need major restructuring, hence they are different from regular freeze-out offers. Our final sample consists of 201 freeze-out offers in 170 different firms. (Thus, 31 of the offers are second and third offers in firms where the first offer was rejected.)

The sample firms are all relatively small, and belong to the small firm (Yeter) index of the Tel Aviv Stock Exchange (TASE). They also do not represent well the industry distribution of TASE firms. The sample industry distribution is as follows (in parentheses we report the TASE corresponding figures): merchandising – 31% (14%), manufacturing – 22% (15%), real estate – 21% (21%), investment and holding – 18% (11%). Interestingly, our sample does not include any technology firms, and has relatively few banks and financial services firms.

Finally, we tried to augment the data by searching merger proposals in Israel during the 2000-2016 period. We find 38 merger proposals by controlling shareholders that are essentially going-private attempts. The low frequency of going-private mergers relative to freeze-out tender offers probably reflects the fact that in Israel the regulatory requirements governing going-private mergers are much tighter. In addition, the acceptance rate of these mergers is 92% compared to a 57% acceptance rate in freeze-out tender offers. Thus, going-private mergers appear different than freeze-out offers, and are not added to our sample.

3.2. Descriptive statistics

Table 1 presents descriptive statistics for our freeze-out sample. The average total assets of all sample firms is 1025 million New Israeli Shekels (NIS), which given an average exchange rate of about 4 NIS per U.S. Dollar during the sample period, equals about 256 million Dollars. The mean (median) Tobin's Q, calculated as the ratio of market values of equity plus book value of debt to the book value of total assets, is 1.10 (0.99). Firm profitability appears mediocre as well, with a mean Return on Assets (ROA) of 1.1%. Also interesting, freeze-out offers typically follow a period of stock price underperformance. The mean (median) weekly net of market return of the sample firms in weeks -55 through -6 relative to the offer announcement is -0.32% (-0.19%).

(Insert Table 1 about here)

Our sample comprises closely-held firms. At the end of the quarter preceding the offer, the mean controlling shareholder holdings and the mean institutional investors' holdings are 82.1% and 4.3% of firm's equity, respectively. Institutional investors are present, i.e. have holdings in 132 (about 66%) of the 201 sample firms.

We examine the distribution of the freeze-out offer premiums and find some extreme observations. Thus, we winsorize the premium data at the 5% level (2.5% on each side), and report in Table 1 that the mean winsorized offer premium relative to the stock price six trading days prior to the tender offer announcement is 23.9% (the median premium is 18.0%).

The mean time given to shareholders to tender their stock is 23 days (median is 19 days). Interestingly, the sample includes 31 repeated offers, 27 of them second attempts by controlling shareholders to take the firm private, and 4 are third attempts.[4] In 58% of the sample offers we observe indications of some pre-negotiation. The pre-negotiation dummy variable is coded as 1 when the offer price is revised during the period between the offer announcement and offer decision date, when the offer proposal reports prior agreements or consents with some of the public investors,[5] and in all repeated offers. In our view, offer price revisions occur after the bidders receive some "feedback" from the market, and second and third offers are made after some "consultation" with the market. Hence, offer price revisions and second and third offers indicate some "behind the scene negotiations".

Last and perhaps the most noteworthy result in Table 1 is the relatively large proportion of rejected offers. The overall failure rate is 43%, and when we restrict ourselves to first offers only, this figure climbs to 48%. These failure rates are large relative to existing evidence from other economies. Restrepo and Subramanian (2015) examine failure rates in the U.S. in 2001-2012. They document rejection rates for

[4] The median time between first and second tender offers is about 6.5 months.

[5] The Israeli Law requires disclosure of any prior agreements or consents between controlling shareholders and public shareholders regarding the freeze-out offer.

freeze-out tender offers of between 12.5% in the pre Cox-ruling era to 23% after it. Bøhren and Krosvik (2013) report an 11% rejection rate for Norway in 1999-2010.

We suspect that the loose regulation of freeze-out offers in Israel is responsible for the relatively high failure rate. It is cheap for controlling shareholders in Israel to submit a freeze-out offer (a simple procedure and very little disclosure). Thus, controlling shareholders might attempt a freeze-out offer even when their motives are mostly exploitive and the offer acceptance likelihood is low. This poses a real challenge to Israeli institutional investors. In the next section we will examine whether institutional investor presence defends the public, and how it impacts freezeout offers terms and outcome.

4. The Impact of Institutional Investors on Freeze-out Offers

4.1. Offer premia

Table 2 reports the mean offer premium in the overall sample and in the subsamples of accepted and rejected offers. Offer premium is assessed as the ratio of offer price to stock price six trading days before the offer announcement minus one. The choice of stock price on day -6 relative to the announcement is designed to moderate the bias introduced by potential information leakage in the days preceding the freeze-out offer announcement.

(Insert Table 2 about here)

In Table 2 the mean offer premium in the overall sample is 23.9%, and the mean premium in successful offers (24%) about equals the mean premium in failed offers (23.8%). Apparently, offer premium level alone cannot explain the outcome (success or failure) of the freezeout offer. To further investigate the relation between offer

premium and acceptance chances we depict in Figure 1 offer acceptance rate by offer premium quintile. Offer acceptance rate tends to increase modestly with offer premium. In the lower premium quintile, offer acceptance rate is 51.2% while in the upper quintile it is 57.5%.

(Insert Figure 1 about here)

Our focus in this study is on institutional investors' impact. When we split the overall sample according to institutional investor presence, some statistically insignificant differences in premia can be observed. In firms with no institutional holdings the mean premium is 21.5%, whereas in firms with institutional holdings the mean premium is 25.1%. Similar results are obtained in another possible split of the data. When institutional holdings are below (above) the median the average premium is 22.3% (25.5% respectively).

Examining the subsamples in Table 2 reveals that institutional investor's impact on the premium is strongest in the subsample of accepted offers, where in firms with institutional holdings the mean offer premium is 27.0% whereas in firms without institutional investors the mean offer premium is 19.4%. This difference is statistically significant at the 10% level, and it is economically significant because it implies that in accepted offers public shareholders receive on average a 39% (=7.6/19.4*100) higher premium when institutional investors are present.

The weak evidence of the higher premium in accepted offers when institutional investors are present is consistent with our Hypothesis 2c. Controlling shareholders appear to be somewhat more "generous" when institutional investors hold their stock. Or, institutional investors "squeeze" a better deal for the public. Recall also that the subsample of accepted offers, where we find the weakly significant differences, is the

most relevant for tests of the impact of institutional investors on the offer premium. This is because accepted offers are the only offers where the transaction is consummated and the public actually receives cash i.e. collects the premium. In rejected offers no deal occurs, hence the associated offer premiums may be somewhat arbitrary, noisy and difficult to interpret.

Table 3 examines institutional investor impact on accepted offers' premium in a more formal way. We regress the offer premium on several measures of institutional investors' holdings, using as controls variables that affect the disbelief level between public and controlling shareholders (firm size, stock return volatility, and abnormal share performance in the previous year), the technical factor of control group holdings, and an indicator of "behind the scenes pre-negotiations" between controlling shareholders (the bidders) and large public investors. All these control variables may affect offer premium – see our discussion in section 2.2. Industry and calendar year fixed effects are also employed.

(Insert Table 3 about here)

In general, Table 3 documents that some of the control variables have a significant effect on accepted offers' premiums. Most significant, the poorer is the pre-offer stock performance (abnormal return) the higher is the accepted offer premium. Poor performance increases public suspicion that the offer is at least partly driven by timing considerations, hence a higher premium is required for the offer to be accepted. From controlling shareholders' viewpoint, poorer pre-offer stock performance leads to a more undervalued stock, leaving space for a more generous offer. Public investors and controlling shareholders appear to agree that following poor stock performance offer premium can or should be higher.

The second important control variable is the pre-negotiation indicator. It has the expected positive coefficient. Pre-negotiations between controlling shareholders and public investors tend to increase offer premium by about 7%. The effect though is statistically significant at the 10% level only.

The central explanatory variable in Table 3 regressions describe institutional investors' holdings. First, in Panel A, we examine the effect of the mere presence of institutional investors. The coefficient of a dummy variable that equals 1 when any institutional investor holds the company shares and equals zero when no institutional investor holds the company, is positive and statistically significant at the 5% level. It appears that accepted offers premia are about 11% higher when there is at least one institutional investor that holds the company shares. This increased premium is also economically significant and larger than our previous table (Table 2) estimate of institutional investors' impact on the offer premium.

In a further elaboration, we add an interaction term between institutional presence and the pre-negotiation indicator to the regressions. This interaction examines whether pre-negotiations have special value when they are conducted with institutional investors. In firms with institutional investors present, “behind the scenes negotiations” most likely involve institutional investors.

When the interaction term is added to the parsimonious premium regression, its coefficient is positive and statistically significant. Further, the coefficients of the pre-negotiation and institutional presence indicators become statistically insignificant and close to zero. The implication is striking. Pre-negotiations increase accepted offer price only in firms with institutional investors. In firms where institutional investors are absent, pre-negotiation does not increase offer premium beyond the standard and

"proper" levels. Only when institutional investors are present, pre-negotiation increases offer premium by about 17% relative to the standard. Apparently, institutional investors are benefitting small public investors by extracting a higher premium from controlling shareholders. Institutional investor bargain harder with the controlling shareholder because they may be better informed and more professional than other public investors.

Another angle can stress the about-zero coefficient of the institutional presence dummy variable and the significantly positive interaction term. This angle message is simple: institutional investors increase accepted offer premium only when there are indications of "behind the scene negotiations" between controlling shareholders and the public. Without negotiations, institutional investors' holdings in a firm do not command above-standard premium.

The premium regression with the interaction term is perhaps our most important result. We test its robustness by omitting the calendar year and industry fixed effects from the regression. The results, reported in the last column of Panel A, are similar to the previous ones, and the adjusted R^2 increases slightly.

In Panel B, we inquire within the sample of accepted offers with institutional investors present (69 observations), the effects on the accepted offer premium of the level of institutional investors' holdings and of institutional investor holding concentration (approximated by the Herfindahl index of institutional holdings). The coefficient of the aggregate holdings of institutional investors is statistically insignificant. Apparently, given institutional presence, higher holdings by institutional investors are not associated with higher premia.

To further check this result we have divided the sample of accepted offers in firms with institutional investor holdings into two subsamples: below and above median

aggregate institutional holdings. (The median aggregate institutional holding is 5.25%.) In the subsample of firms with below median institutional holdings, the mean (median) offer premium is 28.9% (18.4%), and in the subsample of firms with above median institutional investors the mean (median) offer premium is 25.1% (20.3%). Clearly, offer premia appear insensitive to the exact level of aggregate institutional holdings.

Panel B also reports that the coefficient of institutional holdings concentration is statistically insignificant. This finding complements the above-generated picture. In our sample, the main factor boosting the premium appears to be the combination of presence of institutional investors with pre-negotiations. In the last column of Panel B we estimate that when institutional investors are present, pre-negotiations increase the mean accepted offer premium by about 18%.

Last, a methodological comment. The comparison of firms with and without institutional investors may be improper if firms with institutional investors differ materially from firms without institutional ownership. For example, it can be argued that institutional investors elect better firms, and in such better firms, the premium controlling shareholders have to pay in order to take the firm private is higher.

On the other hand, if part of the premium is intended to overcome disbelief and asymmetric information problems, then in firms with relatively large information asymmetry (firms without any institutional investor), controlling shareholders must offer higher premia. In addition, firms with institutional investors are presumably less mispriced, as institutional investors monitor them. The more precise stock prices of firms with institutional investors present should have reduced the premium (all other things equal).

The two opposing arguments above illustrate that even if firms with and without institutional investors differ, our findings concerning accepted offers' premium, are not a natural result of selection issues. The rest of our empirical findings in this study also do not appear as natural consequences of selection problems.

4.2. Offer acceptance likelihood

Another fundamental issue is offer acceptance likelihood. Examining this likelihood is particularly interesting given the relatively low freeze-out offers acceptance rate in our sample. (About half of the offers are rejected.) We estimate offer acceptance likelihood using the following model:

(1) $$Success_i = \alpha + \beta inst_i + O'_i\gamma + T'_i\delta + \tau_t + \varphi_s + \varepsilon_i$$

where $Success_i$ is the freezeout tender offer outcome (binary, success or failure); $inst_i$ is the institutional investors' presence indicator (or cumulative holdings) in the firm; O'_i is a vector of offer characteristics; T'_i is a vector of firm and stock characteristics; τ_t is a year fixed effect; φ_s is an industry fixed effect; and ε_i is an error term clustered at the firm level. Our main interest is in the effect of $inst_i$ on $Success_i$.

For all of our model specifications, results are qualitatively similar when using a linear model (estimated by OLS), Logit, or Probit models. Table 4 reports the results of a Probit analysis. The analysis is based on 188 (and not 201) offers because certain industries perfectly predict outcome, i.e., have few offers, all of which are either accepted or rejected, and because on year 2000 we have only 2 offers both of which are accepted. These cases of perfect predictions by a year or industry fixed effects must be dropped from the analysis.

Several factors appear significant in Table 4. First, we find that the larger the firm, the higher the probability of freeze-out offer's success. This finding may be a result of information asymmetry and uncertainty. Information asymmetry generates suspicion and disbelief amongst public investors, spurring a negative sentiment towards any offer of controlling shareholders. Information asymmetry and uncertainty are lower for larger firms since these firms typically attract analyst and media coverage. According to this view, public shareholders who fear exploitive freeze-out offers can more precisely and confidently examine and evaluate freeze-out offers in larger firms; thus they reject them less often.

(Insert Table 4 about here)

A second determinant of freeze-out offer's success is the controlling shareholders' pre-tender holdings in the firm. The coefficient of the control group's pre-offer stake is positive and statistically significant probably because technically when the pre-offer holdings of the control group are higher, it needs to purchase fewer shares from the public in order to clear the 95% holding hurdle assuring freeze-out offer success.

Third, the positive and statistically significant coefficient of the pre-negotiation indicator is expected. It shows that when controlling shareholders listen to key public shareholders (the "market") and adjust offer price accordingly, the chances of a successful freezeout offer increase.

Last and most relevant to our research goal, the presence of institutional investors in a company decreases the probability of freeze-out offer acceptance. The coefficient of institutional investor presence is negative and statistically significant. It implies that acceptance (rejection) frequency decreases (increases) by 17% when

institutional investors hold the firm. This supports our hypothesis 2a. Looking back at Table 2, a similar phenomenon can be observed. The probability of offer rejection increases from 35% (24/69) when institutions are absent to 48% (63/132) when institutional investors are present.

Another interesting result in Table 4 is that the aggregate institutional investors' holdings do not have any additional explanatory power – see Column 3 through 5 of Table 4. As previously in Table 3, the main trigger appears to be the mere presence of an institutional investor.

Column (6) reports Probit analysis results when we add the interaction of pre-negotiation and institutional presence as an explanatory variable. Unlike in the premium analysis (Table 3), the interaction term coefficient is statistically insignificant. Nevertheless, it is positive and suggests that pre-negotiations with institutional investors (when institutional investors are present) increase offers acceptance likelihood. In fact, if we add up the coefficients of pre-negotiation, institutional presence and their interaction term, we obtain that pre-negotiation with institutional investors slightly increase offer acceptance probability. Without negotiations institutional presence significantly decreases offer acceptance likelihood, whereas with negotiations institutional presence extra-resistance evaporates.

Column (7) presents results of Probit analysis including the interaction term when year and industry fixed effects are omitted as a robustness test. The conclusions are unchanged. Pre-negotiation with institutional investors neutralizes their “natural” opposition to freezeout offers.

4.3. Rejection decision ex-post rationality

The finding in the previous section that institutional investors' presence increases the likelihood of offer failure when controlling shareholders do not "negotiate" with the institutional investors suggests that institutional investors identify and filter out some exploitive freeze-out offers that the public cannot identify on its own. If this interpretation is correct, and some of the freeze-out offers are timing attempts (attempts to buy undervalued stocks) by controlling shareholders, then, on average, the future stock performance of firms with rejected offers might be positive.

We employ the cumulative excess return of firm shares from offer proposal to about half a year after its rejection, CAR_rejected hereafter, as our measure of the true underpricing of the stock. Note that CAR_rejected starts on offer date, thus representing the alternative gain or return to shareholders who do not accept the offer. CAR_rejected extends till half a year after the rejection because if some freeze-out offers are based on inside information, we have to allow a few months after the rejection decision for most of this information to leak out or be publically disclosed. In addition, the median time till a repeated offer is about 6.5 months, and we do not want to overlay offers.

According to our Hypothesis 2b, rejection decisions are rational when institutional investors hold the firm. This implies that CAR_rejected should be equal or higher than the offer premium, i.e., according to Hypothesis 2b, in the subsample of firms with institutional investors' presence, public shareholders gain on average from not accepting the offer. However, a finding that in firms with institutional investors, on average, CAR_rejected – offer premium > 0, is a necessary but insufficient condition to support Hypothesis 2b. This is because it is possible that rejection decisions in firms without institutional investors are also rational, leading to a positive average

CAR_rejected – offer premium in these firms as well. In such a case of rational rejection decisions in both firms with or without institutional investors, Hypothesis 2b contends that rejection decisions are especially rational when institutional investors are present. That is, on average, CAR_rejected – offer premium is higher in the subsample where institutional investors hold the firm relative to the subsample where they do not.

We estimate CARs (cumulative abnormal returns) using the net of market methodology. This choice is not arbitrary. When we attempt the market model methodology with parameter estimation before the freeze-out announcement, we find negative intercepts for most of our sample stocks. This suggests that on average firms that receive freeze-out offers are in some kind of a crisis or slide before the offer. In our opinion, the deterioration biases market model parameters and renders the market model estimation unfit. We also attempt to employ the market model with parameter estimation after the offer rejection. However, this shrinks sample size by about a third.[6]

In practice, we compute the excess return of stock i, as:

(2) $AR_{iT} = R_{i,T} - R_{M,T}$,

where AR_{iT} is the excess return of stock i on day T of the event window, $R_{i,T}$ is stock return on day T of the event window, and $R_{M,T}$ is the return on the Yeter (small stock) index of the Tel Aviv Stock Exchange on day T of the event window. (The Yeter Index is used as the market index because all of our sample stocks belong to it.) In addition, we compute the Cumulative Abnormal Return (CAR) of each stock as:

(3) $CAR_i(T_b, T_e) = \prod_{T=Tb}^{T=Te}(1 + AR_{iT})$,

[6] When using the market model with parameter estimation after offer rejection, the results are similar and the conclusions are identical to those obtained with the net of market methodology.

where $CAR_i(T_b, T_e)$ is the cumulative abnormal return of stock i from day T_b through day T_e of the event window, and AR_{iT} is as in equation (2) above.

Figure 2 depicts the cumulative excess returns of the shares of 86 firms with rejected freeze-out offers.[7] The picture is striking. The cumulative excess return in the period from a few days before offer announcement to offer rejection date is about 22%, similar to the mean offer premium. Further, on offer rejection we observe only a slight drop in CAR. Apparently, most of the accumulated excess return stays even though the offer and its premium are no longer valid. It appears that on average the offer premium is integrated into the stock price regardless whether or not the offer is accepted.

(Insert Figure 2 about here)

The "permanent" upper revision in stock price shows that rejections of freeze-out offers are not horrendous for public shareholders. We can examine now to what extent offer rejections are rational. Table 5 tests the (ex-post) rationality of the offer rejection decision, comparing the offer premium (relative to day A-1 price) to CAR_rejected, CAR(A,D+125), the abnormal stock return from one day before the offer announcement to about half a year after offer rejection.

(Insert Table 5 about here)

Panel A of Table 5 reports that the mean CAR(A,D+125) of all rejected offers is 31.88% while the mean premium is 22.65%, a difference of 9.23% that is almost statistically significant (t=1.62). On average, shareholders gained from offer announcement to half a year after offer rejection about 9% more than the offer premium. This non-trivial extra gain portrays rejection decisions as beneficial and rational.

[7] Out of our 87 rejected offers, in one case the firm's stock was delisted from the stock exchange during the announcement to decision period. Hence, we cannot calculate the relevant CARs for it.

However, because of the relatively long event window period, the estimated CARs are relatively noisy, and there are several offers with extreme CARs.[8] Thus, a more conservative approach would rely on the median. The median difference between CAR (A, D+125) and offer premium is -1.25%. Given this median, the conservative inference is that, in general, offer rejections do not hurt public shareholders. In other words, even according to the conservative approach, public decisions to reject a freezeout offer are not irrational.

Looking at Panel A of Table 5, the effect of institutional investors' presence appears to be minimal. When institutional investors are present the median difference between CAR (A, D+125) and offer premium is -0.76%, whereas when they are absent the median difference is -3.07%.[9] Apparently, institutional investors' presence does not significantly improve public investors' gains in rejected freeze-out offers. Thus, Hypothesis 2b, proposing significant beneficial effects of institutional investors in the subsample of offer rejections, cannot be supported.

Why does Hypothesis 2b fail? Perhaps a glimpse at the answer can be obtained by splitting the sample by the pre-negotiation indicator. Results of such a split are reported in Panel B of Table 5. Statistically significant inference is possible only in the subsample of firms with institutional presence. The evidence appears clear-cut. When there were no pre-negotiations with controlling shareholders, the offer rejection decision appears brilliant, as the mean CAR(A,D+125) is more than double the offer premium. The mean CAR(A,D+125) is 40.22% while the mean offer premium is

[8] In particular, there are two cases where CAR is about three times larger than the respective premium. In addition, these two offers are in firms without any institutional holdings.

[9] The mean differences between CAR(A,D+125) and offer premium is more positive in the subsample of firms without institutional investors than in the subsample of firms with institutional investors (22.99% versus 4.21%), yet this is due to two large outliers.

18.56%, a difference of 21.66% that is significant at the 1% level. The median difference between CAR(A, D+125) and offer premium of 11.46% illustrates that in most cases public investors gained nicely from these offers rejection. In 20 (62.5%) out of the 32 offers in this subsample, CAR(A, D+125) – offer premium > 0.

The findings in the subsample of rejected offers in firms with institutional holdings and no pre-negotiations can be compared to the corresponding subsample in firms without institutional presence. Judging by the more conservative measure of median (CAR(A, D+125) – offer premium), when institutional investors are present the median CAR(A, D+125) – offer premium is 11.46% while when they are absent the median CAR(A, D+125) – offer premium is -0.08% - see Panel B. It appears that the presence of institutional investors benefitted the public, a finding that is consistent with our Hypothesis 2b.

When there were pre-negotiations with controlling shareholders in firms with institutional investor holdings, yet public shareholders rejected the offer, the mean difference between CAR(A, D+125) and offer premium is -13.81% with a t-statistic of -3.07, significant at the 1% level. The respective median difference of -15.02% illustrates that public investors losses in this subsample are substantial. In 22 (71.0%) of these offers CAR(A, D+125) is less than the offer premium. Despite the fact that there is institutional investor presence in these firms, the rational decision of accepting the offer is rejected, and public shareholders lose.

The failure of institutional investors in the subsample of rejected offers with "pre-negotiations" is the reason for the lack of support for Hypothesis 2b. Above we documented that the subsample of rejected offers in firms with institutional investors

and no pre-negotiations Hypothesis 2b is supported. Only because of the subsample with pre-negotiations Hypothesis 2b fails.

The failure of institutional investors in the subsample of rejected offers with "pre-negotiations" is also perhaps the most intriguing result of the study. Why are these freezeout offers, that are decent on average, and that follow pre-negotiations, rejected? One possibility is that institutional investors failed in leading the public to these offers' acceptance. That is, it is possible that most institutional investors tendered their shares in these offers, yet the public did not. We have no information on what institutional investors do in each offer (institutional investors do not disclose their actions), hence we cannot test this possible explanation.

A more intricate explanation for the rejection of decent freezeout offers in firms with institutional investors even after "pre-negotiations", is that institutional investors might have other unrelated considerations that induce them to reject the offer. That is, despite the fact that the institutional investors know that the offer is decent they elect to reject it. According to this view, institutional investors might act strategically and their decision about freeze-out offers is just part of their continuous repeated game contest with controlling shareholders. In this setting, offer rejection by institutional investors is conceivable even when the offer is fair. The institutional investors' long-term reputational concerns and stance against controlling shareholders may override the simple concrete rational decision on a specific offer. This interpretation is really intriguing as it suggests that institutional investors are willing to suffer short-term loses in return for long-term gains. The contest between controlling shareholders and institutional investors is continuous and long-term, and in some cases institutional investors are ready to show off their power even at a cost of a short-term loss. There

may be no better chance to show off your power than declining a decent freezeout offer of controlling shareholders after pre-negotiating with them.

5. Summary and Conclusions

We examine institutional investors' impact in a sample of about 200 freeze-out offers in Israel. Freeze-out offers represent extreme "terminal" decisions, where institutional investors' actions might be more decisive and evident. In addition, the choice of Israel, where freeze-out offers are rejected relatively frequently (close to 50% of the times), affords wider latitude of actions by institutional investors. A third and perhaps the most distinctive feature of our sample is the fair proportion (about 35%) of firms without any institutional investor holdings. Comparing firms with and without institutional investors facilitates an interesting and novel examination of the mere (0,1) effect of institutional presence.

The study documents three major findings. First, freeze-out offers are rejected more frequently when institutional investors hold the firm. Second, in accepted offers, the offer premium is higher when institutional investors hold the firm and where there appear to be pre-negotiations between controlling and public shareholders. Interestingly, in both these findings the effect is due to the mere presence of institutional investors. The exact level of institutional holdings and the concentration of their holdings have insignificant coefficients and negligible economic effects. It appears that the presence of even one institutional investor is a “rule breaker” or a step function. The presence of an institutional investor constraints controlling shareholders and forces them to be more considerate of the public or else offer will fail. This is our most novel and significant finding and conclusion.

Our third major result is that public investors do not lose on average by rejecting freeze-out offers. On average, the cumulative net of market stock returns of firms with rejected offers (from offer announcement to half a year after offer rejection) exceeds the offer premium, irrespective of whether or not institutional investors hold the firm shares. We examine why institutional investor presence does not appear to have a beneficial effect in offer rejections, and find that when institutional investors are present and there are pre-negotiations between controlling and public shareholders, offer rejection hurts public shareholders (as offer premium exceeds on average the comparable net of market stock return). We conjecture that sometimes institutional investors reject fair freezeout offers and hurt other public shareholders of these stocks just because they want to demonstrate their power in their continuous contest with controlling shareholders. Such actions are rational and may pay off only in the long-term. Such strategic actions may also serve well the general public investor community.

Future studies should further examine our intriguing conjecture that institutional investors sometimes sacrifice short-term gains in order to strengthen their strategic position in their ongoing struggle against controlling shareholders. Likewise, our main finding of the step-function-like effect of institutional holdings should be empirically verified and further examined in other samples and economic environments.

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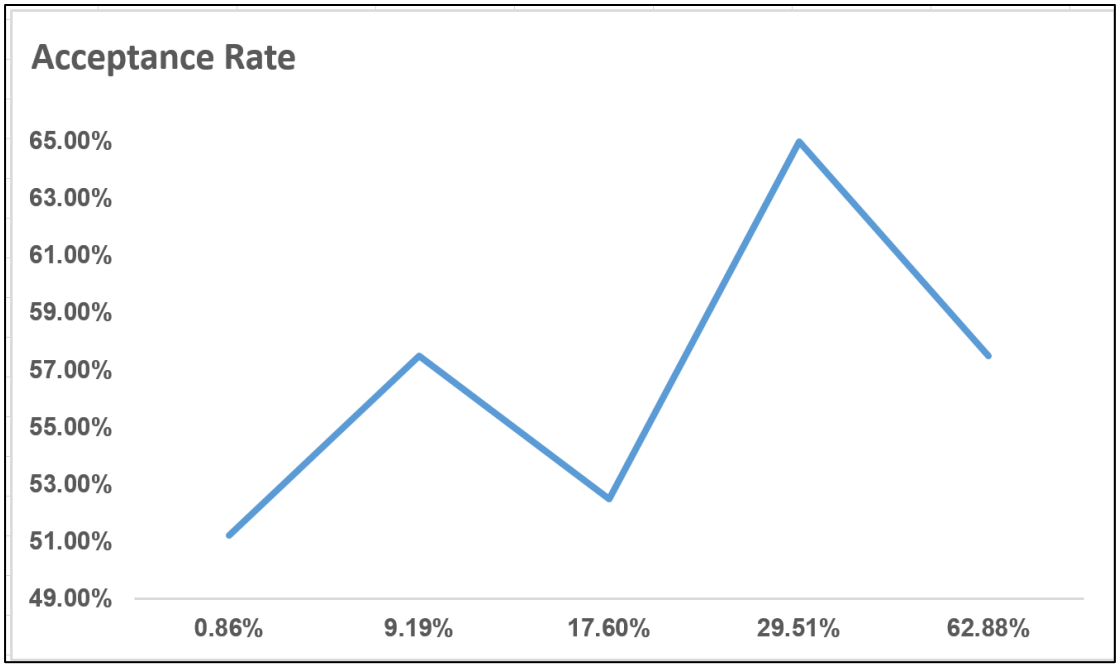
Figure 1: Acceptance rate as a function of freeze-out offer premium.

We divide the offers into five quintiles based on the winsorized (2.5%, 97.5%) premium data (winsorizing is performed in the overall sample). Offer premium is defined as (offer price/stock price A-6) -1, where stock price A-6 is stock price six trading days prior to offer announcement date. In case the offer price is revised before decision date we use the revised offer price in the numerator.
The mean premium in each quintile is shown on the horizontal axis.



Mean premium by quintile

Figure 2: Cumulative abnormal returns surrounding failed freeze-out offers.

The figure shows the mean cumulative abnormal return (CAR) for the target stocks in 86 failed freeze-out offers. To calculate abnormal returns, we employ the net of market methodology. First, for each offer we identify the announcement day (day A) and decision day (day D). Then, for each day T within the window A-25 through D+25, we compute the abnormal return of the stock *i* as: $AR_{i,T} = R_{i,T} - R_{MARKET,T}$, where $R_{i,T}$ is stock i's return on day T of the event window, and $R_{MARKET,T}$ is Israeli small stocks *(Yeter)* index return on day T. (All of our sample stocks belong to this small stocks index.) Last, we compute the Cumulative Abnormal Return (CAR) for stock i as $CAR_i(Tb, Te) = \prod_{Tb}^{Te}(1 + AR_{i,T}) - 1$, where day Tb is day A-25, and day Te is the respective day T in the event window.

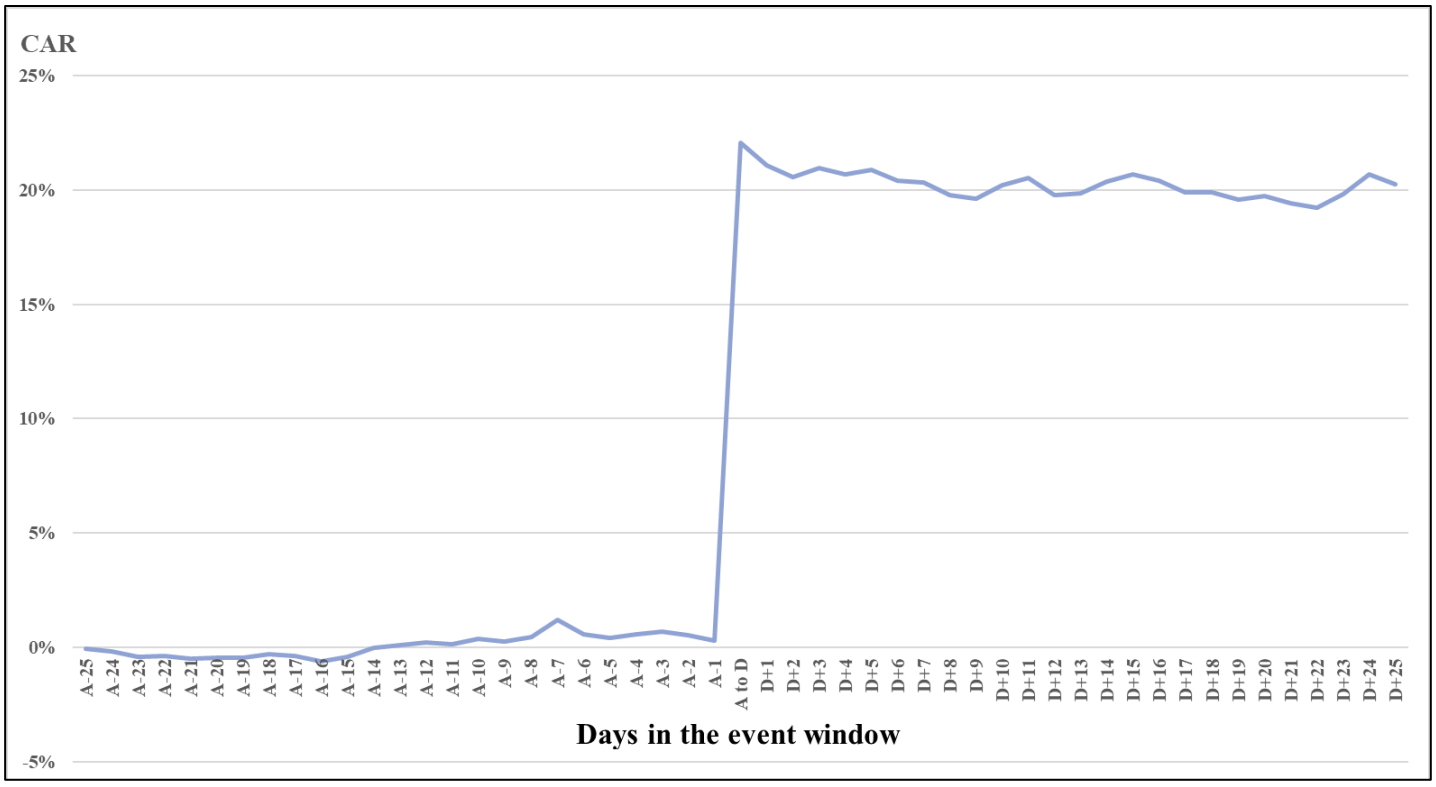


Table 1: Sample descriptive statistics.

The table presents means, medians, and standard deviations of different characteristics of our 201 sample offers. Total assets, Debt, and ROA are from firms' annual reports at the end of the calendar year preceding the offer. The figures in US Dollars are about 1/4 of the figures in NIS (based on an average exchange rate of 4.03 New Israeli Shekels (NIS) per US Dollar during the sample period (2000-2016)). Tobin's Q is the sum of firm's equity market value and firm's debt book value divided by total assets. Control group holdings is the pre-offer proportion of firm's equity held by the control group. ROA is the ratio of operating income to total assets. Institutional holdings is the fraction of firm's equity held by institutions at the end of the quarter preceding the offer. Pre-offer abnormal return is the mean net of market weekly return of the company's stock in weeks -55 through -6 relative to offer announcement, where the market is the Israeli small stock (*Yeter*) index return (all of our sample stocks belong to this index); STD of pre-offer returns is the standard deviation of the weekly returns of the company's stock in weeks -55 through -6 relative to offer announcement. Offer premium is defined as (offer price/stock price A-6) -1, where stock price A-6 is stock price six trading days prior to the offer announcement date. The premiums are winsorized at the 5% level (2.5% on each side). In case the offer price is revised before decision date we use the revised offer price in the numerator. The Pre-negotiation indicator equals 1 for a repeated (second or third) freeze-out offer for the firm, for offers with revised offer prices, and when the offer proposal itself discloses prior consent between controlling shareholders and large public investors (0 otherwise).

	Mean	Median	Standard deviation
Company characteristics			
Total assets (in thousands NIS)	1,025,112	221,232	3,066,008
Tobin's Q	1.10	0.99	0.49
ROA	0.011	0.031	0.143
Control group holdings (as a proportion of equity)	0.821	0.853	0.105
Institutional holdings (as a proportion of equity)	0.043	0.019	0.058
Institutional presence (indicator)	0.657	1	0.476
Pre-offer stock returns			
Weekly net of market return in the pre-offer period	-0.0032	-0.0019	0.0110
STD of weekly returns in the pre-offer period	0.0644	0.0565	0.0374

Offer attributes			
Premium	0.239	0.180	0.253
Pre-negotiation indicator (1=yes, 0=no)	0.58	1	0.49
Days from announcement to decision	23	19	10.7
Acceptance rate	0.57	1	0.50

Table 2: The effect of institutional investor holdings on freeze-out offer premium.

The table presents the mean offer premium in the overall sample and in different subsamples. The number of offers is reported (in parentheses) below the mean premium. Offer premium is defined as (offer price/stock price A-6) -1, where stock price A-6 is stock price six trading days prior to offer announcement date. In case the offer price is revised before decision date, we use the revised offer price in the numerator. Winsorizing is performed on the overall raw premium data at the 2.5% and 97.5% levels. All of the mean differences between the compared subsamples in the rows and columns of the table are statistically insignificant at the 5% level.

		Mean offer premium in the subsample of	
	Mean of all observations	Successful offers	Failed offers
Overall sample premia			
	0.239	0.240	0.238
	(201)	(114)	(87)
Partitioning by institutional presence			
Institutional investor present	0.251	0.270	0.231
	(132)	(69)	(63)
No institutional investors	0.215	0.194	0.255
	(69)	(45)	(24)
Partitioning by institutional holdings			
Institutional holdings above median	0.255	0.273	0.236
	(100)	(51)	(49)
Institutional holdings below median	0.223	0.213	0.240
	(101)	(63)	(38)

Table 3: The effect of institutional investors on successful offers' premium.

The table reports results of OLS regressions of successful freeze-out offers' premium on several measures of institutional investor holdings using various controls. Panel A reports results for all successful offers (114 offers), whereas Panel B restricts the analysis to successful offers with institutional investor presence (69 offers). Offer premium is defined as (offer price/stock price A-6) -1, where stock price A-6 is stock price six trading days prior to offer announcement date. In case the offer price is revised before decision date we use the revised offer price in the numerator. Winsorizing is performed on the overall raw premium data at the 2.5% and 97.5% levels. Amongst explanatory variables, Log total assets is the natural logarithm of the firm's total assets (in thousands of New Israeli Shekels); Control group holdings is the controlling shareholders' pre-offer holdings (fraction); Institutional holdings is the institutional holdings at the end of the quarter preceding the offer (fraction); Institutional presence indicator equals 1 (0) when institutional investors have some (no) holdings in the company in the quarter preceding the offer; HHI measure is a Herfindahl-based index computed as $[\sum_i S_{if}^2]$, where S_{if} is institution *i*'s fraction of total institutional holdings in company *f* in the quarter preceding the offer; Pre-offer abnormal return is the mean net of market weekly return of the company's stock in weeks -55 through -6 relative to offer announcement, where the market is Israeli small stock *(Yeter*) index return (all of our sample stocks belong to this index); STD of pre-offer returns is the standard deviation of the weekly returns of the company's stock in weeks -55 through -6 relative to offer announcement; Pre-negotiation indicator equals 1 for a repeated (second or third) freeze-out offer for the firm, for offers with revised offer prices, and when the offer proposal itself discloses prior consent between controlling shareholders and large public investors (0 otherwise); and Pre-negotiation * Inst. presence is the interaction of the Pre-negotiation and Institutional presence indicator variables. Industry fixed effects are according to Tel Aviv Stock Exchange industry classification (9 industries). Standard errors, clustered at the firm level, appear in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively.

Panel A: The effect of institutional presence on the premium

	(1)	(2)	(3)	(4)	(5)
Log total assets	0.007				
	(.017)				
Control group holdings	-0.28	-0.30			
	(0.25)	(0.24)			
STD of pre-offer returns	0.63				
	(0.80)				
Pre-offer abnormal return	-12.8***	-13.3***	-13.2***	-12.9***	-11.8***
	(3.3)	(3.0)	(3.0)	(2.9)	(2.7)
Institutional presence indicator	0.103**	0.109**	0.117**	-0.011	-0.035
	(0.049)	(0.047)	(0.048)	(0.066)	(0.046)
Pre-negotiation indicator	0.065*	0.071*	0.073*	-0.042	-0.011
	(0.038)	(0.038)	(0.038)	(0.057)	(0.045)
Pre-negotiation * Inst. presence				0.217**	0.165**
				(0.090)	(0.065)
Calendar year fixed effects	Yes	Yes	Yes	Yes	No
Industry fixed effects	Yes	Yes	Yes	Yes	No
Number of observations	114	114	114	114	114
Adjusted R^2	0.231	0.243	0.242	0.277	0.281

Panel B: The effect of institutional holdings and institutional holdings' concentration, conditional on institutional presence

	(1)	(2)	(3)
Log total assets	0.058**	0.030	
	(0.028)	(0.031)	
Control group holdings	-0.69	-0.25	
	(0.45)	(0.38)	
STD of pre-offer returns	1.80	2.33	
	(2.02)	(1.89)	
Pre-offer abnormal return	-19.2***	-17.4***	-18.4***
	(4.50)	(4.51)	(3.45)
Institutional holdings	-1.20		
	(0.87)		
HHI		-0.105	
		(0.165)	
Pre-negotiation indicator	0.124	0.073	0.179**
	(0.120)	(0.123)	(0.074)
Calendar year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Number of observations	69	69	69
Adjusted R^2	0.323	0.303	0.312

Table 4: The effect of institutional investors on freeze-out offer acceptance.

The table reports Probit regression results. The dependent variable equals 1 if the freeze-out offer is accepted, and equals 0 if it is rejected. The total number of observations is 188 (and not 201) because certain industries perfectly predict outcome, i.e. have few observations all of which are in the same direction (accept or reject), and because the two only offers on year 2000 were accepted. Offer premium is defined as (offer price/stock price A-6) -1, where stock price A-6 is stock price six trading days prior to offer announcement date. In case the offer price is revised before decision date, we use the revised offer price in the numerator. Winsorizing is performed on the overall raw premium data at the 2.5% and 97.5% levels. Amongst explanatory variables, Log total assets is the natural logarithm of the firm's total assets (in thousands of New Israeli Shekels); Control group holdings is the controlling shareholders' pre-offer holdings (fraction); Institutional holdings is the institutional holdings at the end of the quarter preceding the offer (fraction); Institutional presence indicator equals 1 (0) when institutional investors have some (no) holdings in the company in the quarter preceding the offer; HHI measure is a Herfindahl-based index computed as $[\sum_i S_{if}^2]$, where S_{if} is institution *i*'s fraction of total institutional holdings in company *f* in the quarter preceding the offer; Pre-offer abnormal return is the mean net of market weekly return of the company's stock in weeks -55 through -6 relative to offer announcement, where the market is Israeli small stock *(Yeter*) index return (all of our sample stocks belong to this index); STD of pre-offer returns is the standard deviation of the weekly returns of the company's stock in weeks -55 through -6 relative to offer announcement; Pre-negotiation indicator equals 1 for a repeated (second or third) freeze-out offer for the firm, for offers with revised offer prices, and when the offer proposal itself discloses prior consent between controlling shareholders and large public investors (0 otherwise); and Pre-negotiation * Inst. presence is the interaction of the Pre-negotiation and Institutional presence indicator variables. Industry fixed effects are according to Tel Aviv Stock Exchange industry classification (9 industries). Standard errors, clustered at the firm level, appear in parentheses. *, ** and *** denote significance at the 10%, 5% and 1% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log total assets	0.17**	0.19***	0.18**	0.20***	0.17**	0.19***	0.13**
	(0.07)	(0.07)	(0.08)	(0.08)	(0.08)	(0.07)	(0.06)
Control group holdings	4.98***	5.13***	4.51***	4.80***	5.00***	5.32***	4.03***
	(1.29)	(1.33)	(1.40)	(1.45)	(1.42)	(1.35)	(1.32)
Offer premium	0.25		0.14		0.25		
	(0.53)		(0.52)		(0.54)		
STD of pre-offer returns	-5.06		-4.63		-5.05		
	(3.46)		(3.31)		(3.46)		
Pre-offer abnormal return	-0.88		-1.02		-0.86		
	(13.16)		(12.90)		(13.16)		
Institutional holdings			-2.13	-1.77	0.08		
			(2.77)	(2.77)	(2.99)		
Institutional presence indicator	-0.60**	-0.56**			-0.61**	-0.78**	-0.60**
	(0.27)	(0.27)			(0.29)	(0.36)	(0.30)
Pre-negotiation indicator	0.83***	0.82***	0.80***	0.79***	0.82***	0.53	0.49
	(0.22)	(0.22)	(0.22)	(0.21)	(0.23)	(0.34)	(0.32)
Pre-negotiation * Inst. presence						0.47	0.18
						(0.47)	(0.40)
Calendar year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	No
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	No
Number of observations	188	188	188	188	188	188	188
Pseudo R^2	0.227	0.219	0.212	0.205	0.227	0.223	0.119

Table 5: Testing the ex-post rationality of the freeze-out offer rejection decision.

We compare the freezeout offer premium to the stock price response. Stock response is estimated by CAR (A, D+125), which is the cumulative abnormal (net of market) return from the offer announcement (day A) to about half a year after the offer decision date (day D+125). In this table, offer premium is estimated relative to day A-1, and is defined as (offer price / stock price on day A-1) -1. CARs and premium data are winsorized in the rejected offers data-set (86 offers) at the 2.5% and 97.5% levels. The table examines 86 failed offers only because one of our 87 failed offers ceased trading before offer rejection date.

Panel A: The effect of institutional presence on the rationality of the rejection decision

	Mean CAR (A, D+125) (in %)	Mean offer premium relative to day A-1 price (in %)	Mean difference between CAR and the premium (%)	t-statistic of the difference	Median difference between CAR and the premium (%)	% positive differences (z-value – it's not random)	Number of offers
All failed offers	31.88	22.65	9.23	1.62	-1.25	45.4 (-0.85)	86
No institutional investors	49.11	26.12	22.99	1.40	-3.07	39.1 (-1.05)	23
Institutional investors present	25.59	21.38	4.21	0.85	-0.76	46.0 (-0.63)	63

Panel B: Further analysis of the rationality of rejections based on "pre-negotiations"

	Mean CAR (A, D+125) (in %)	Mean offer premium relative to day A-1 price (in %)	Mean difference between CAR and the premium (%)	t-statistic of the difference	Median difference between CAR and the premium (%)	% positive differences (z-value – it's not random)	Number of offers
No institutions + pre-negotiation	40.74	30.31	10.43	0.55	-8.80	40.0 (-0.63)	10
No institutions + no pre-negotiation	55.56	22.89	32.67	1.28	-0.08	46.2 (-0.27)	13
Institutional investors present + pre-negotiation	10.48	24.29	-13.81	-3.07	-15.02	29.0 (-2.34)	31
Institutional investors present + no pre-negotiation	40.22	18.56	21.66	2.86	11.46	62.5 (1.41)	32

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